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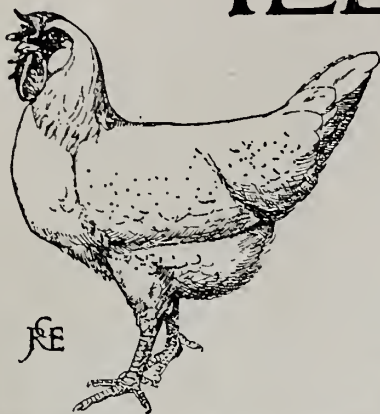
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A MODERN BROODER PLANT

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THE ILLUSTRATED POULTRY RECORD



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EDITORIAL NOTICES.

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The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered by experts in the several departments. The desire is to help those who are in difficulty regarding the management of their poultry, and accordingly no charge for answering such queries is made.

The Annual Subscription to the ILLUSTRATED POULTRY RECORD at home and abroad is 8s., including postage, except to Canada, in which case it is 7s. Cheques and P.O.O.'s should be made payable to the ILLUSTRATED POULTRY RECORD.

The ILLUSTRATED POULTRY RECORD is published on the first of every month. Should readers experience any difficulty in securing their copies promptly they are requested to communicate immediately with the Editor. The latest date for receiving advertisements is the 20th of the month preceding date of issue.

The utmost care is exercised to exclude all advertisements of a doubtful character. If any reader has substantial grounds for complaint against an advertiser he is requested to communicate at once with the Editor.

Appreciations.

"Die beste Geflügel Zeitung in der Welt" was the observation made to us recently by a German breeder in reference to the POULTRY RECORD, but which modesty suggests that we should leave in the original, without giving a translation. That opinion is confirmed by what appears in our valued contemporary, the *Reliable Poultry Journal*, which in a recent issue said : "POULTRY RECORD is published on heavy enamelled paper, the illustrations show up in fine style, and the text or reading matter each month is of the highest quality—substantial, reliable, constructive, progressive. American poultry papers might well pattern to a considerable extent after the example set." These two tributes to our efforts are very welcome as showing that to some extent we have been able to realise the ideal of a clean, sane, dignified, and informing publication, produced in the best manner. So much we can fairly claim has been done, though there are many parts of our project that have not been attained as yet. In, therefore, wishing for those who have hitherto supported us so splendidly, readers at home and abroad alike, a Prosperous New Year, we ask their continued cordial and hearty support, as well as for that of many who up to the present could not be included in our *clientèle*. The more we receive of that, the greater will be our power to serve them.

The Fancy in 1910.

In the first issue of the year the opportunity arises for us to give a review of the events of the past twelve months. We never miss our opportunities—were we to do so, then the RECORD would not merit its title. To go fully into all details is hardly possible in these "Diary" notes, but we can and will deal with a

few of them. To begin, then. The breeding season is an important part of the fancier's year, and taking that of 1910 as a whole, it cannot be said to have been a very favourable one. Perhaps it differed but slightly from many of those which have gone before; but—we remember better ones, much better. The very early chickens—some, maybe, having eaten their Christmas dinner—did much to swell the entries at the summer shows; in fact, without them more than one event we can name would have been a failure. Those hatched at the “natural” season had their chance, and took it, at the autumn and winter events when the early birds were moulting, or, from excessive showing, had “gone all to pieces”; and the late-hatched ones—they may get their chance later on! Late-hatched, or “summer,” chickens were not as successful as, for instance, they were in 1909; the weather was all against their growth. And the year closed amid such exceptionally wet and unseasonable conditions that it is very questionable if the crop of early chickens will be at all satisfactory. A point that the excessive amount of rain has emphasised is that the scratching-shed system, or some such arrangement, is well-nigh imperative to enable one to rear chickens in winter. And, be it noted, the fancier is as keen as the rearer of chickens for the spring markets to have his birds out and about during the short days. With those fanciers who trade in eggs for incubation the breeding season appears to be a more prolonged one each year. It is a mistake, nevertheless; more lasting good would result if it were curtailed to three months, instead of six, seven, or even eight, as is often the case nowadays.

The Exhibitions.

Without going into the actual figures, there is every reason to believe that poultry shows have been as numerous as ever. There is room for curtailment here, if merely to prevent some of them from being everlasting failures. Changes move slowly in Fancy circles. We welcome the time when the Poultry Club will be strong enough to gather every society under its wing and to control exhibitions, so that some scheme may be devised whereby a large percentage of the shows will be confined to a given radius, and only the “classical” events thrown open to competition from all parts. During the past season, it appears that the price-limit shows have come into vogue again, and, generally, with a large measure of success—if success can be reckoned by the numbers of entries which they have attracted. They were popular in certain quarters; they gave the novice a chance,

although in not a few instances they gave the professional a chance also—of purchasing really good specimens at much less than their actual value. If a limit must be imposed we would favour the radius rather than the price; there is the fear that the general adoption of a price-limit, as low as £5, for instance—and if it is higher it opens the door to the teamster—would reduce the Fancy to breeding “selling platers” only, and that would never do. Then, again, appeals for entries have not been lacking during the past season, albeit many of the regular exhibitors treat such appeals as snares for the unwary! Be that as it may, there are fanciers who withhold their entries until they are appealed to specially, and who seldom think of entering their birds until the eleventh hour. At a show where entries close a month or so beforehand this is not surprising, but at the vast majority of poultry exhibitions the closing date is fixed at the latest time possible to enable the executives to make the necessary arrangements with the penning contractors and the printers. Maybe, if the number of poultry shows was curtailed the exhibitor would be forced to enter within a reasonable time. No doubt many a secretary would like reform in this direction; but we are afraid that such a day is far distant. If we miss old shows from the list, and we do so almost each year, one at least crops up to take its place, sometimes two, and if not on the old spot, then not far removed from it.

The Breeds and the Clubs.

Then as to the breeds; but this is really out of the province of our “Diary” notes. Suffice it to note that new varieties are still being “made,” and there was no sign of the craze for novelty abating when 1910 was rung out. On the other hand, there are signs that an increased interest has been taken in the old-established breeds of poultry, and there has been a revival in one as ancient as the Brahma, while quite a few old friends have turned their attention once more to the Cochin—it is disheartening, sometimes, trying to get on top with the new kinds! The revival is welcome; new blood in old breeds always does an amount of good, but when old friends return it is the best sign of all. There has been no decrease in the number of fanciers, rather, in fact, have the ranks swollen. The specialist clubs have continued their good work. There have been bickerings here and there, and the pity is that some of them have been made public. On the whole, however, the Fancy is a good family; and a handshake has settled more than one difference of opinion. That is as it should be; above all, fanciers must be

sportsmen if the Fancy is to be for the good of all rather than for the benefit of a select few. The Poultry Club has not been free of criticism, just in some instances and unjust in others. No doubt it will remember 1910 through its wavering over the "judge must be a member" rule, but in adopting such a rule it is merely following in the lines that have been adhered to for some years by specialist clubs. Nevertheless, the Poultry Club has done much good work, and there was an election in 1910, at any rate! How it will fare under the new division for vice-presidents remains to be seen; but this is certain, competition for places at this year's election will probably be the keenest on record, since there will be only one vacancy in each section. On the dawn of a new year we hear of more clubs being formed and more varieties striving for recognition by the Poultry Club, and one of the first for 1911 will be the Blue Orpington.

The All-Round Fowl.

From time to time discussion arises as to which class of fowl is most profitable—namely, that yielding to the maximum degree eggs on the one hand or flesh on the other, or that combining both qualities, but each in a lesser degree. Many statements are made which command universal acceptance, whilst others ignore essential factors. A true explanation must be sought. Much depends upon the special conditions under which the work is carried out. Where eggs form the main source of revenue and chickens are little in demand, the poultry-keeper must necessarily put the first-named in the primary position. His success will entirely depend upon the average egg-production of his entire stock. Under such circumstances he is well advised to select the breed which will yield the greater number of eggs at the least cost for food. It is a fact that the lighter-bodied, active, non-sitting races are not only heavy layers, but they are less expensive to feed than are the larger breeds, though perhaps they are not equally productive in winter. On the other hand, where the market demands fine-fleshed table-chickens there is no question of eggs save for reproductive purposes. For such trade neither the non-sitters nor the all-round breeds yield the best results. One carries too little flesh, which is usually hard and dry, and in the other, although there is a much larger amount of edible muscle, it has not the flavour or distribution required for a first-class trade, and in many cases the colour of flesh and skin is that of the second or third grades. We are firmly of opinion that in many sections of the country farmers are well advised to adopt the all-

round fowl, which, by its greater number of winter eggs and the better table properties, will prove more profitable than the non-sitting breeds, but not where the production of table-chickens is specialised. The claim made that these heavy breeds will lay as many eggs, and retain such flesh qualities as they possess, as the lighter races is untenable. All experience in all classes of stock is that development of one quality is at the expense of others.

Finding a Foreign Trade.

A provincial poultry-breeder recently said to us that his advertisement in the POULTRY RECORD had cost him a good many shillings monthly in having translations made of letters received from foreign inquirers and in preparing letters of reply. A better tribute to the widespread influence of our publication could not well be given. There are, as we have abundantly proved, many keenly interested in poultry who are able to read English and diligently peruse the RECORD, but who do not feel able to write letters in English. These are among some of the best buyers in other lands. What we have to do, as far as possible, is to remove from their path anything and everything that will hinder the development of this foreign business. Hitherto the language question has been a great barrier, with the result that dealers in other countries, where the conditions are most favourable to linguistic ubiquity, have reaped a large advantage therefrom, as we have previously mentioned. To accomplish this much, it is desirable that as far as possible applicants shall be answered in their own language, for that gives confidence and helps greatly in securing orders. It is to the interests of British breeders that this shall be done, and the cost will, in many cases, be compensated many times over. If there are any difficulties in doing this, our services are at the disposal of advertisers, and we are ready to undertake translations of letters received and sent at nominal charges, which in no sense mean profit to us, but have as an object the securing directly of this international trade, which is capable of enormous extension, but has been greatly checked in the past. It is recognised in all parts of the world that Britain is the great centre for stock poultry; there is a growing demand for the birds our breeders possess, and their business is to break down the barriers which have checked the international trade.

Fighting the Foe.

The December *World's Work* prints a letter which one of its correspondents has received from a minister in Arizona, which gives the

record of one of the bravest fights which we have read, and which in its pathos and grim determination should be an incentive to others who may be afflicted with physical weakness. We feel justified in referring to it because poultry gave the lever by which the object was accomplished. The writer was stricken with consumption, for which he knew there was no cure. It was to some extent a question of time, although the end might be staved off by determined activities out of doors, for, to use his own expression, "The really vital thing in the fight against tuberculosis is to keep the malady *below* the collar-bone. The 'white plague' is a disease of the *lungs*—not the brain." The object in view is well stated thus :

I have been working for years on the hen problem. . . . In my case the fever was never of the raging sort. My inspiration to work with poultry came from deeper sources. I have been waging a tireless warfare for the financial freedom of my family. No matter how weak in body, I have never been infirm in purpose. I know there is no cure in me; that I can never again know what a man really feels like who breathes and fills his lungs. With me the question is simply—how long can I stay here with my family? There is a flame that burns within the breasts of some "lungers" that seems to resist the blasts that shriek for its extinguishment.

Starting six years ago with twenty-four hens, he now owns two thousand, and it is evident from his story that he has found the financial success for which he has fought so valiantly, but at the same time a measure of health which at one time seemed impossible. In his case the man has both deserved and commanded success. But, as he says, "The secret of this poultry proposition is found in the cells of the brain, not in the muscles of the arm."

Soft Food for Breeding Stock.

A writer in the *Poultry World* has made the definite statement that soft food is unsuitable for breeding stock, as it tends to force egg-production at the expense of fertility and of vigour in the germ. Without committing ourselves to a complete acceptance of the thesis, we cannot but feel that under modern breeding conditions, with all the intensiveness apparently inseparable from methods necessary to profitable poultry-keeping and to the greatly increased production essential in these days, every aspect of the question should be studied to stop the leakages, one of which is the loss arising from the two causes named. A little reflection will show that there is probably more in this suggestion than at first would appear, and that, at least, it should receive careful investigation. Everyone will admit that the birds which give the most fertile eggs, containing the most vigorous germs, are such as are kept

under natural conditions, and which have nothing in the way of special foods to induce egg-production. We have inclined to the opinion that this was mainly due to the greater amount of exercise and of oxygen, as a result of which the bodies are in harder condition. And, further, the majority of poultry-breeders will agree that soft food tends to overlay the internal organs with fatty deposits, which in their turn lead to infertility and germs deficient in vigour. On the other hand, breeders hold the opinion that without soft food laying would be delayed, and consequently the period at which chickens are hatched correspondingly retarded, which in itself would be harmful. But there is this much to be considered—namely, whether even if the period of laying be somewhat delayed the eggs would not be more fertile, the germs stronger, and the chicks when hatched grow more rapidly, so that the gain would be ultimately the greater. To obtain winter eggs for consumption, it would appear that soft food is almost indispensable, but for breeding stock it may be altogether different. The question deserves careful and systematic investigation.

A New Point in Artificial Incubation.

Reference has been made from time to time to the experiments conducted upon the private poultry farm of Herr P. Sweers (whose portrait was given in our issue of May, 1909, Vol. I., p. 488), at Huls, near Crefeld, Germany, of which we hope to give a description later. Herr Sweers has paid a great amount of attention to artificial incubation, and, like all operators, has been greatly puzzled by the greater evaporation of machine-hatched eggs as compared with those under hens. Further, his experience has been that generally a higher percentage of chickens is obtained in an incubator when used for the first time, and that succeeding hatches seldom gave equal results. After prolonged investigation he has come to the conclusion that this is due to changes in the wood of which the machine is made, which, by loss of moisture, becomes absorbent. Therefore, during the embryonic stage and after hatching the wood attracts the humidity, thus causing enfeeblement, as indicated by death in shell and mortality after hatched. To counteract this influence he has covered the inside wood entirely with oil-cloth, sides, tray, bottom, &c., and states that the doing so has effectively prevented the trouble. This is a question we commend to the makers of incubators as worthy their experimental work, and, so far as we are aware, is a new idea, which, if the researches of Herr Sweers are confirmed, might alter the entire position of affairs.

POULTRY SLUMS.

By EDWARD BROWN, F.L.S.

IN an address recently delivered Professor W. R. Graham, of the Ontario Agricultural College, Guelph, designated certain forms of poultry-yards as "slums," a striking term which fairly represents only too many such places in every country, new and old. Let us, however, see what is meant. The dictionary thus explains the term—"a low, dirty street or district in a large city occupied by a vagabond class." That may be accepted as correct up to a point, but the definition is capable of considerable extension, for there are slums in small towns and even villages. For our purpose, therefore, that is, in relation to poultry-keeping, we may apply it

wherever by bad housing, or tainted ground, or foul conditions, or gross overcrowding, the environment is antagonistic to the well-being of the stock which themselves are low in the order of the *genus galli*, as are frequently the inhabitants of human slums to the *genus homo*. In both cases to a very

large extent the denizens are a result of their conditions, though the latter may be aggravated by the former. It is not a question of extent of operations. I have seen small and large poultry-yards alike which were slummy in the extreme, and, on the other hand, have found both classes where the opposite was true. It is not necessarily due to lack of space, or to number of birds kept, but to lack of management. One of the most successful poultry-keepers I have ever known was a man who had only a few square feet of a back-yard in the East-End of London—successful, that is, in relation to his opportunities and extent of operations. He only kept six laying hens, from

which he had obtained upwards of a thousand eggs in twelve months. By careful management, cleanliness, replacement regularly of soil in the run, and sensible feeding, he had attained this result. There was nothing slummy in place or birds. On the other hand, some big plants with abundance of land available must be described as "poultry slums."

ELEMENTS OF A POULTRY SLUM.

Dirt is said to be matter in the wrong place, which is an axiom that may be accepted without question in this connection. It is the accumulation of what should be somewhere else that

makes the poultry slum.

What we call dirt is the medium in which various of the lower forms of life develop to an enormous extent. They revel in the conditions, multiply enormously, and prey upon the hapless birds who have no possible escape. That in itself demoralises the latter, and in process of time these



A TYPICAL BACK-YARD SLUM.

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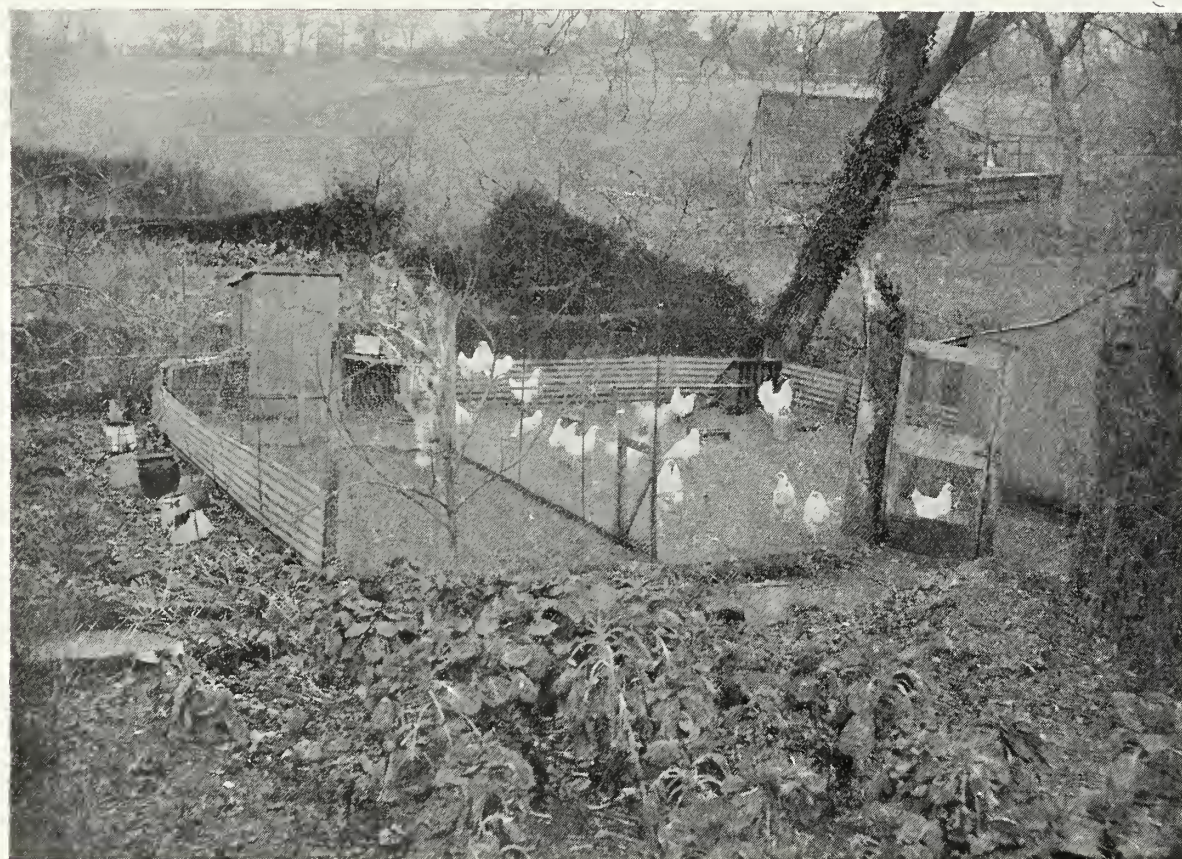
conform more or less to their environment, degraded in habit, and filthy in body. It is truly wonderful, the tenacity of life where existence is hardly worthy of the name, for the adaptability of animals and birds to their conditions is marvellous, as is that of human beings. The penalty, however, has ultimately to be paid. Either disease makes its appearance and sweeps off the entire stock, or productiveness is at its lowest point, though we are often surprised at what is done under circumstances which seem to violate every hygienic law that is known. This is not a question of poorly-built houses, of crude, untidy fences, of small runs, though slums and small runs are

coterminous, or even of the number of birds kept. I frequently pass a place where for several years at least a dozen fowls have been kept, and one or two lots of chickens annually reared on a piece of ground not more than twenty feet square, and successfully, but the house is good, well ventilated, the house and the two runs are kept scrupulously clean, the gravel in the latter is swept regularly and renewed frequently, the feeding is truly scientific, that is, suitable to the conditions, making the inmates work as much as possible for what they obtain. A little neglect, and it would be a veritable slum.

named, the last is most apparent, and in certain respects may be regarded as of the greatest importance. A good, well-ventilated, clean house would do something, but if the soil is in a bad state, if it is charged with manure and sodden with filth, slum conditions are present.

SMALL POULTRY-YARDS.

The greatest danger arises in towns and thickly-populated districts where land is scarce and dear. Here, if poultry are kept at all, they must be restricted to a very small area. When we remember how many of the people them-



AN EXAMPLE OF WHAT SHOULD BE: AN EXCELLENTLY-ARRANGED POULTRY ALLOTMENT
BELONGING TO MR. T. WISE, CALCOT ROW, READING.

[Copyright.]

Such proves that the fault is not in the conditions, but in the management.

My own judgment is that the three main factors in making a poultry slum, whether the operations be large or small, are impurity of atmosphere, uncleanness in the roosting-house, and foul, tainted ground. All these are often found upon farms where the birds are chiefly about the homestead, but as these have the freedom to wander afield and are not restricted to one place, they cannot be said to dwell in slums. Moreover, they are able to vary their conditions at least during the day. Therefore, the term given is applied mainly to such as are kept within confined runs. Of the three factors

selves have to live in few and small rooms where hygienic principles are practically unknown, and fail in realisation of the importance of fresh air and cleanliness, it is scarcely to be expected that they will provide better for their fowls than for themselves. Under such conditions it is not surprising that some of our public authorities have seriously proposed the enactment of bye-laws prohibiting the keeping of fowls. With the feeling which has prompted such suggestions we are bound to sympathise, but the general application would be a grave injustice to those who, by care and attention, maintain their stock of birds in a proper manner. That in many cases there is danger

to public health may be accepted, but it need not be so. Everyone would agree that if the fowls are in filthy, evil-smelling runs, the same laws should apply to poultry as to other stock, and that where on inspection this is proved to be the case, the alternative of improved conditions or abolition should be drastically applied. It is a question for the authorities of public health, who are, however, not altogether to be trusted because they do not at present understand the subject. We must start with the proviso that poultry may be kept if definable hygienic conditions are observed, but, and it is here where we must face the question boldly, in numbers conforming to the amount of space available. The older type of town dwellings are in many cases scandalously deficient in back-yard or garden accommodation, frequently with an open area very much smaller than that occupied by the dwelling-house itself. Under such conditions poultry should not be kept, though the risk is comparatively small if cleanliness is rigidly applied and the number of birds be limited. It must, however, be remembered that in districts where smoke-voiding factories abound the application of the same standard of cleanliness is impossible as elsewhere. Even there if the run be formed of gravel or ashes, or even earth, and is swept daily and renewed from time to time, the avoidance of anything like slum conditions is by no means difficult. Much can be done by draining. Pipes put in to carry off surplus water about fifteen inches down, covered with broken brick or stones, and with a foot of gravel or medium-sized ashes to the level required, well beaten down, will keep the run dry, and can be swilled with water to carry off much of the manure. It is the surface water mixing with manure and loose soil which gives the slummy appearance.

NUMBER OF FOWLS TO AREA.

One of the main points to be observed is limitation of the number of birds kept. It is here that so many mistakes are made. Half a dozen fowls may be profitably kept on, say, a piece of ground 15ft. by 8ft., provided that what has already been stated is carried out, and will frequently give a greater total number of eggs than if there be twice as many, and the danger of loss and disease will be much less. No cock need be kept, for birds kept in this manner are not suitable as breeders, and the rearing of chickens is undesirable; in fact, I have known many cases where failure resulted simply by reason of the fact that too much was attempted. Instead of buying pullets when required to replace the old hens, chickens were reared for that pur-

pose. Where there is an additional piece of land which can be reserved for chickens, and planted as soon as they are taken off, there is no reason why a sitting of eggs should not be purchased and a brood reared. But what I wish to point out is the folly of trying to run an entire poultry-yard on a space scarcely sufficient to swing a cat. Success in every branch of life depends largely upon knowing what we cannot as well as what we can do. If all the accounts published in American journals as to what is known as the Philo system of rearing are correct, nay, if only "half of what has been told" is true, that method may help to solve the problem of this form of intensive poultry-keeping in our thickly-populated districts, provided that the provision of fresh soil in the runs is carried out systematically, and feeding is suitable thereto. But—and at present it is with a very great *but*—we want to see it in practice under our conditions. The moist atmosphere of the United Kingdom may alter the application of this or any other system. As before suggested, it is the effect of moisture upon the manure and loose soil which causes the run condition which is so objectionable and so dangerous. What may be done in a dry climate does not necessarily follow where the air is impregnated with water and the rainfall is considerable.

SLUMS ON LARGER PLANTS.

Nor are poultry slums restricted to back-yard runs or to thickly-populated districts. These are sometimes found on larger establishments. Where long range-houses are employed they are frequently slummy, outside and inside, both or either. This is due to several causes. Where there is any want of cleanliness within the building, dirt accumulates and, frequently, fowls decay. The old housewife's recommendation always to sweep out the corners and never mind the centre of the room applies here also. Corners are curses to poultry-keeping, harbourages for dirt and parasites. Upon that point enlarged consideration is unnecessary, as all will agree in principle. But there is this much to be said, the man who is conducting a poultry business for profit must economise labour as that is costly, and, with the form of house named, time to clean thoroughly is not always available.

It is in the runs, however, that slummy conditions often prevail. In this respect something depends upon the nature of the ground. A light, porous ground, on which water does not stand, but percolates through as rapidly as the rain falls, should never, with ordinary care, become as dank and sodden as where it is heavy and sticky. Even with that, however,

if manure is allowed to gather, mixing with the earth and forming a more or less impervious upper crust which is impenetrable by water, all the elements are present for a poultry slum. But such result is much more rapid on the denser soils, especially if of clay, where one of the first steps to be taken should always be a thorough draining, and by raising the level above that of the adjoining ground provide a sufficient fall for the water. The mixing of sifted ashes with the earth to form this upper layer is a simple and inexpensive method of avoiding the antagonistic influences which militate against the comfort of our poultry. In this connection it should be remembered that a heavy and, therefore, a moisture-laden soil is always colder than one which contains less water. Cold feet in fowls have undoubtedly the same influence as in human beings, with the added fact that where the fowls are kept within enclosures they are unable to overcome such influence by migration or induce a more rapid blood circulation by exercise. Nothing is more pitiable than to see a few miserable fowls standing all day long on a damp, filthy piece of land, with dirt-clogged feet, vainly endeavouring to find some incentive to action. What wonder, therefore, if they are unproductive and unprofitable. A little labour, a small expenditure of money, would alter the entire aspect of affairs.

We are learning much in connection with poultry plants, but the importance of larger runs needs to be constantly urged. Some time ago I visited a poultry establishment upon which a large amount of money had been expended in buildings and equipment. These were well designed and of good material. But with abundance of land available they had

been crowded together, and the runs were small in the extreme, in fact, very little larger than the space occupied by the houses. As a result failure had marked the enterprise in two or three hands. It deserved the name of a poultry slum, in spite of all efforts that could be put forth to keep the houses and runs in good condition.

THE APPLICATION.

With the changes that are taking place we may fairly anticipate that, equally in rural, suburban, and urban districts, greater opportunities will be available for poultry-keeping, and that a largely increased number of our people will maintain a stock of fowls, either for supply of their own households or sale of the produce. Therefore, it is of the utmost importance that every effort should be put forth in order to teach the principles which underlie this pursuit, principles which are identical with those found essential to the well-being of all animals. The points which require to be emphasised are—first, well-ventilated houses, affording an abundance of oxygen when the birds are on the roosts; second, absolute cleanliness in the houses, using freely limewash with which is mixed some strong disinfectant, regular sweeping of the walls and renewal of the floor covering, so as to destroy the parasites which prey upon the birds; third, provision of a dust-bath so that the birds may clear their feathers and skin from parasites; and, fourth, well drained, regularly treated runs, in order that the ground may be dry and pure. A poultry slum is not the result of environment, whether the operations be large or small, so much as want of proper management.

THE REPORTING OF POULTRY SHOWS.

By W. M. ELKINGTON.

THE development of the Poultry Fancy has given a remarkable impetus to the profession of reporting, and the extent of the work created by the multiplication of poultry shows could scarcely have been anticipated when specialist journals first took to publishing critical reports. At the present time the reporter is a more or less necessary part of the whole machinery of the Fancy. I say more or less, because his importance depends to a great extent upon his own ability, and the status of the show he is dealing with. For instance, the specialist who deals with his own pet variety at the big shows ranks only second in importance to the judge, and his opinions are

eagerly devoured by thousands of readers; whereas the local man with little or no experience, whose report consists mainly of polite platitudes and hackneyed phrases, and whose field of action consists of the smaller shows not easily reached by the regular reporting staff, might not exist but for the fact that he supplies the awards, which, after all, are what fanciers really need.

The great drawback to the profession of reporting, and a menace to its proper accomplishment, is the fact that it is very poorly paid. It is, however, scarcely likely that newspaper proprietors will be induced to adopt this view, for, with something like 600 or 700

shows every year, the providing of critical reports constitutes a very considerable proportion of the cost of production, and as in some few weeks of the year as many as forty or fifty shows are held, it frequently necessitates the publication of enlarged editions at a heavy cost for paper and printing. If it were left to the newspaper proprietors, the reporting profession would doubtless find its scope somewhat restricted; but the public demand settles the matter, and the reporter does his very best, whether he be a "special" or a "local." In the generality of cases he is paid so much per column, and he must pay his expenses out of his own pocket, so that at a small show there is but a very little reward for half a day's hard work, and it is not to be wondered at that the ranks of the reporting staff are constantly being recruited, since those who have made a position in the Fancy gradually drop out and leave the smaller shows to the beginners. Some, indeed, who at one time regularly journeyed about the country for this purpose now report only the shows they are judging or visiting for some other purpose, so small are the amounts to be earned; so that, through lack of more capable men, the work has sometimes to be entrusted to fanciers who are little known, and whose experience of many breeds is extremely limited.

This, however, is of little consequence at the small shows so long as the reporter is not too ambitious or too critical. So long as he contents himself with an accurate list of the awards and a few brief comments on the points of the winning birds he cannot go far wrong; but to lend his pen for the satisfaction of disappointed exhibitors is a fatal error, and one of the first rules a young reporter should observe is to use his own judgment and not be influenced by the opinions of others, who in nine cases out of ten are biased by personal interests.

But, of course, from the point of view of the average exhibitor, a reporter should be a critic as well. He is expected to point out where the judge has erred, which seems to insinuate that he is a better man than the judge, although it is proverbially easier to judge a class when the cards are up. But a man needs to be an expert and a specialist to venture upon adverse criticism, and we naturally find more of this at the big shows, where the work is generally undertaken by some of the leading judges and breeders. In such circumstances the reporting staff have rendered many signal services to the Fancy, and it is significant that in very few cases has a reporter misrepresented public opinion. It has happened before now that a critical report has served to call attention to misconduct on the part of a

judge, and there can be no doubt that the fear of exposure in the public Press has acted as a deterrent in many cases.

As I have said, a full critical report of one of the big shows by men who are specialists in their own sections is of very great value to fanciers, and it is doubtful if an editor can place more attractive fare before his readers. But, unfortunately, circumstances are conspiring to deprive us of these exhaustive and interesting pieces of expert criticism. For one thing, the demands made upon newspaper space by the numerous shows necessitate rigid economy, and even at the more important shows reporters must necessarily make their remarks as brief as possible. Then, again, to the professional reporter there naturally arises the necessity of covering his expenses and leaving a balance to repay him for his hard work, and it frequently happens that, through the desire to make as much as possible of the opportunity, a reporter undertakes more than he can get through with justice to himself and the subject in hand. With all the diverting incidents around and the crowds of fellow-fanciers to take one's attention from the work of the moment, reporting at a big show like the Dairy or the Crystal Palace is a difficult and by no means enjoyable task. Pressmen are not permitted to work with the judges before the public are admitted, and so there remain but two or three hours of daylight on the opening day (I refer, of course, to shows opening on a Tuesday), together with the early part of Wednesday in which to examine the exhibits and prepare the notes; consequently, bearing in mind the editor's request for early delivery of copy, the reporter frequently finds himself pushed for time; and in order to complete the heavy task he has undertaken, he must necessarily make his inspection as brief as possible. And it need scarcely be stated that a man who passes by the exhibits with a mere superficial glance and a brief examination of the winners is not in a position to write such an instructive and interesting report as the specialist who undertakes the few classes of his own pet breed, spends plenty of time in examining each and every specimen, and gives you his candid opinion on their merits and their positions. But then, this man is probably an exhibitor or a judge, or at any rate he is not dependent upon the small sum he will receive for writing the critique, like the regular reporter to whom this work is a means of livelihood. But if there is any cause for complaint about the hurried reporting at the big shows, what shall we say about some of the larger provincial events that open on a Wednesday? Fanciers expect to see the reports of these shows in the Friday's

papers, and, thanks to the combined efforts of editor, reporters, and printing staff, they are seldom disappointed. Thursday is press day for the Friday papers, and reports must reach the London office by first post on that day, so that a reporter who undertakes a fairly important show, with, say, sixty to one hundred classes, in the North, East, South, or West must waste no time in getting on with his work. Fortunately, most of the provincial show promoters have a sympathetic regard for the reporter, and he is invariably allowed to commence his duties while the judges are at work, unless (and it frequently happens) the catalogues have not arrived. In any case, there is only time for a brief inspection, for often the reporter has a long journey home, and notes have to be written in the train. To the average reader the task may not appear difficult, and often the remarks of the reporter may seem unsatisfying and even inaccurate; but modern circumstances are at the bottom of the trouble. Time is short, the man must necessarily do as much as he can to pay his way, and efficiency may to some extent be sacrificed.

The question has often been discussed as to what manner of man makes the best reporter. Many argue that the judge is in the best position to write a good report; others hold, with perfect reason, that in such cases criticism is necessarily stifled and errors are left undiscovered, whilst many more hold that a breeder and exhibitor is liable to be influenced by personal considerations. I can only say that, as an exhibitor, I would rather read the opinion of the judge who places the awards than that of anyone else. He, in the course of his duties, has an opportunity of examining each specimen, and, if he does his work conscientiously, he is enabled to state in his report the reasons for the placing of the awards, which to an exhibitor is valuable information, and amply compensates for lack of criticism, even supposing there is anything to criticise. Failing the judge, no one is better qualified to report a show than a breeder-exhibitor; for, though he may have a natural prejudice in favour of his own birds, it does not follow that he will abuse his privileges for blatant self-advertisement, and it is by no means to be assumed

that he is unable or unwilling to do justice to other people's exhibits. Speaking again as an exhibitor, I naturally feel that I would like a man to report upon my birds who knows something of their points. I very much dislike to read that one of my birds fails in shape when shape is its most valuable asset, or that it excels in colour when the colour is the one point that does not please me. The competent breeder-exhibitor does not as a rule make these mistakes, and, so long as he will accurately state the characteristics of my birds and others, I feel that I can forgive him remarking that his own should have won. The reporter I do not like and do not trust is he who knows just enough about the various breeds to realise that Orpingtons are "cobby," Wyandottes "shapely, with neat heads," Indian Game "tall and reachy," and so on. More than once, when judging a show, I have been asked by a reporter what breed or variety a certain bird belonged to. One gentleman did not know the difference between Black-Red and Brown-Red Game, and another was puzzled by a White-Rock! You may say the papers ought not to employ such people; but if fanciers will have reports, they must be written by the best reporters available, and at many of the smaller shows the services of comparative beginners are necessarily enlisted. Nevertheless, considering that many fanciers place considerable reliance upon reporters, the work of these unskilled men must naturally give rise to dissatisfaction, and I think it provides a strong argument in favour of signed reports. This reform has many times been suggested, and I think the majority of the leading reporters would willingly put their names to what they write, more especially in connection with specialist reports. But the subject bristles with difficulties that are not obvious to the average reader. Editors, you may depend, are eager to give their patrons the very best criticism available; but, as I have said, the multiplication of poultry shows complicates their task, adds to their expenses, and necessitates the employment of a big permanent staff and many local casual assistants in all parts of the country, in whose ability and integrity a newspaper proprietor places his confidence. He can do no more.

POULTRY THROUGH THE MICROSCOPE.

VI.—REVELATIONS OF COOKED FOWLS.

WRITTEN AND ILLUSTRATED BY JAMES SCOTT.

WE shall be able the better to understand our present subject if we examine awhile the chief details of a fowl's cellular structure.

The cooking of poultry involves far more peculiarities than are generally supposed. Physiology and chemistry are allied to heat, whether a fowl be boiled, baked, or roasted. Heat strangely modifies the chemical ingredients but does not materially alter the minute bodily forms; although there are always sufficient modifications to enable a microscopist to readily distinguish between raw and cooked flesh, even when such differences cannot be told by the naked eye because of the scrappiness of the substance.

The blood, although it has to be drained off as much as possible, has been responsible for building up the body. Upon examining a drop beneath the microscope we find that it consists wholly of densely-packed disc-like corpuscles — and fewer globular ones — which float in a thickish plasma, known as a serum after it has left the body. These corpuscles, shown in No. 1, are oval, and flat, each side sinking in towards the other. Sometimes their edges only are observable. They absorb the nutriment from the fowl's food, after the latter has been liquefied, and carry it through the blood-vessels, whence it is deposited to form flesh. They also carry off the particles of waste tissues and leave them in the organs of excretion. Life-giving oxygen is imparted from them. They themselves are reproduced, and die, on their own account.

If a drop of fowl's blood is kept on a slide for a few hours to dry, tiny transparent points arise therein, some of them being rather pretty in shape (shown in No. 2) as though they were minute glass ornaments. These are crystals of various salts that have been held in solution by the plasma or travelling fluid. Being isolated and free from the stirring motion and warmth which maintained their fluidity, they concentrate out from the watery portions of the substance, just as dissolved table salt does if a vessel containing it stands undisturbed for a time.

It seems almost blameworthy merely to mention so vastly important a topic as this; but we must pass on to other phases of the subject.

After the feathers are plucked off, there remain the numerous scattered fine hairs, which

need singeing before the fowl can be trussed ready for the fire. These are, fundamentally, almost identical with the hairs of a human being and other mammals; yet they exhibit variations of their own. Really, however, the scales of reptiles and fishes, the hairs of animals, and the feathers of birds are all possessed of connecting links, implying that they collectively had a similar origin in the pre-historic past.

I withdraw a single hair from the otherwise naked body of any specimen fowl and magnify it, placing it in a drop of water to emphasise its details. In No. 3 are depicted its three chief phases. The roots, or bulbs, are white, pulpy, and greasy, and rather squarish at the lower end. The shape of the cells, which, by multiplying, gradually grow out from the skin to constitute the hair, can be fairly well seen. The shaft of the hair for nearly its whole length is cylindrical and covered outside by myriads of narrow scales laid over one another like the tiles of a roof, except that they point upwards. The hair is semi-transparent when viewed under these conditions, so that the light and shade of the particles get mixed up, as it were.

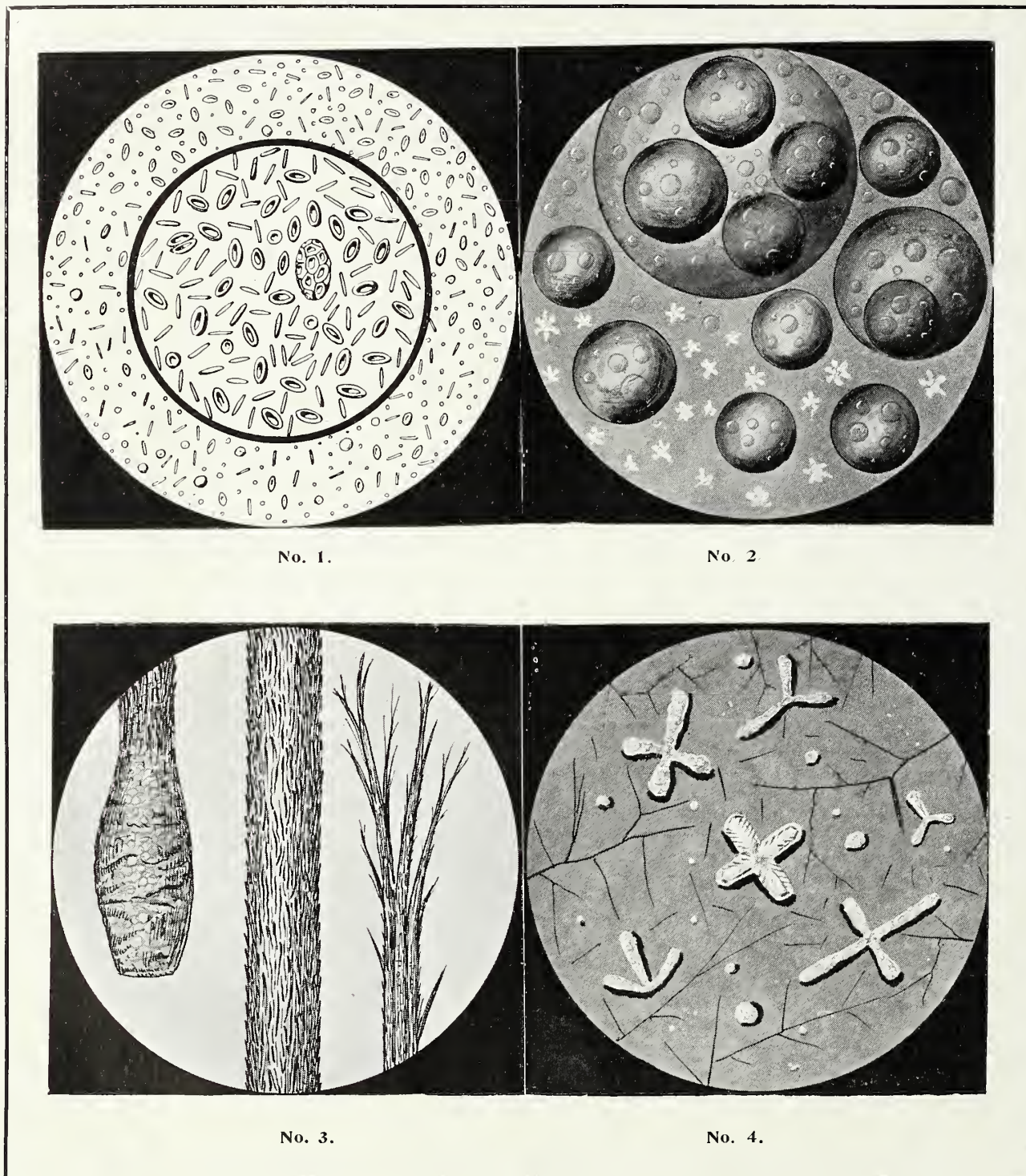
The top of the hair is split up, lengthways, into branches which are themselves still further divided. These features cannot be detected to any great extent by the naked eye; but they help to prove that the structural relationship existing between hairs and feathers is very close.

I next slice off a tiny piece of the thigh and press it between two glass slides while it is moistened with water. See No. 6. There are then observed minute fibres, many of them forced apart from the remainder so that their features are clearly exposed. The muscles consist almost wholly of such slender filaments, very finely striped across, each enclosed by an exceptionally thin skin or membrane. Bunches of these microscopic fibres are wrapped together in other skins, and these compound sets are united with similar ones, until we reach the visible fibres, which come apart from one another in the cooked fowl. If the reader will untwist a piece of common string he will find that it consists of fibres united together. As he continues undoing the substance, it becomes evident that these fibres are made up of finer

ones, and these, in turn, when separated, are short and thread-like. Muscle and flesh are very similarly constructed, except for the enclosing membranes referred to and the absence

of twist. When the teeth operate on this flesh it is not torn, but is simply separated fibre from fibre.

Transparent connective tissue permeates or



NO. 1.—The larger circle shows a drop of fowl's blood newly withdrawn. It consists of a liquid in which float dense quantities of corpuscles or tiny discs. The smaller circle shows some of these objects on a larger scale.

NO. 3.—Pieces of one of the fine hairs remaining on a plucked fowl, and which are generally singed off. First, the root or bulb, which is embedded in the skin; second, the shaft; third, the apex.
A magnified pinhole.

NO. 2.—The drop of blood shown in No. 1 dries to a film within a few hours, and then appears as in the above pinhole, magnified. The corpuscles have then amalgamated and lost their shapes, and meantime tiny crystals spring into view.

NO. 4.—A magnified pinhole view of the hot gravy from a baked fowl. As the globules burst and release their gases, the surrounding medium gets full of star-like rosettes, which increase in size. See No. 5.

binds all parts of the body. It consists of layers of gelatin with filaments crossing it, as though they consisted of folds or creases pressed into firmness. This connective tissue is so extensive that if all the organs, muscles, and flesh could be dissolved away the tissue would remain as a perfect model of the body, composed of spaces bounded by gelatin, of which this tissue consists. The bones, also, are sheathed in gelatin.

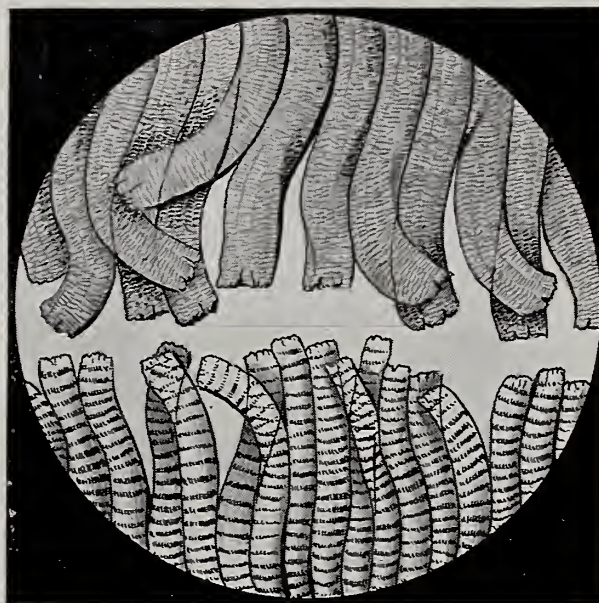
Imagine a bundle of firewood to represent the muscle or flesh. Then pour a fluid jelly down between the interstices of the sticks and let it set stiffly. This would typify the connective tissue, because if it were possible to dissolve away the wood, there would be left a casing of the sticks. This is a rough idea; but will no doubt suffice for the purpose of explanation.

There are, of course, many other formations to be found in the flesh and organs, each possessing its own characteristics; but I have no opportunity to go further into the subject.

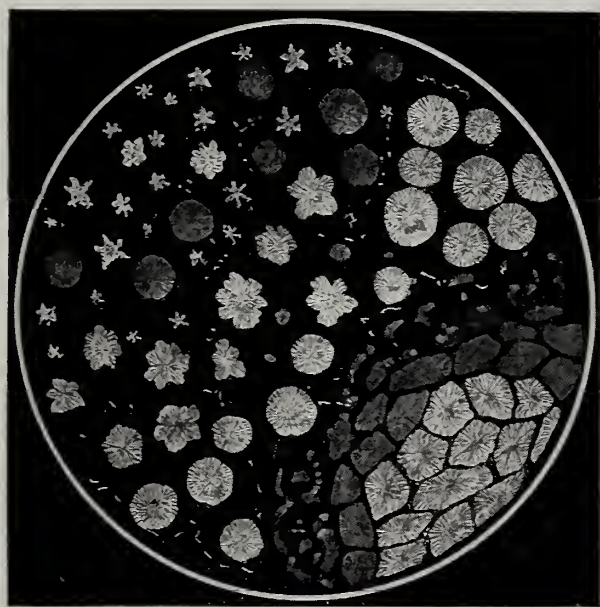
Suppose, now, we are roasting our fowl. As the heat diffuses through it the fat melts and fizzes outwards or upwards, because the various microscopically thin membranes of the cells, and so on, burst, and thus provide spaces for the flow of liquid between them. The fat

hinder the escape of valuable juices. Some of the substances do emerge, so that it becomes necessary to return them as far as possible by means of basting, and thus allow the protective layer to become thicker.

The flesh contains many volatile consti-



NO. 6. The flesh of a fowl. The upper half shows the uncooked fibres and the lower half the same pieces after baking, A magnified pinhole.



NO. 5.—The tiny rosettes shown in No. 4 enlarge into spheres of fuzzy appearance. These, in turn, join together, and form the white, glistening fat which cools on top of the gravy. A magnified pinhole.

is a hydrocarbon. That is to say, it consists essentially of carbon (which is revealed as charcoal) and hydrogen gas. Glycerine is also a component. As this fat runs over the surface its glycerined carbon is browned, or caramelised into a layer which helps to seal up the pores, or broken cells, like a varnish, and

trients; and were it not for the caramelising process these would entirely evaporate into the air and be lost. When we bake a fowl these important vapours are reabsorbed by the flesh, so that basting is not required.

The albumen contained in the lean flesh, and the gelatine of the ligaments (the gelatine is dissolved first in the watery elements) also considerably help to stiffen the surface, through coagulation of the first-named and gluing of the latter. It should be, and is, the aim of the breeder so to balance the proportion of all these substances that one assists the other to make a tasty and nutritious dish. He may not know exactly *why* and *how* these things interact; but he produces the material without which no scientist could study causes and effects.

I remove a drop of the hot gravy on to the microscope slide and find that it contains hosts of bubbles of various dimensions, some inside others. It is by their swelling and bursting into smaller ones that the frizzling occurs.

Each starts as a globule of gas, which by rolling and gyrating about gets covered with a film of substance. Sometimes the film is not amenable to reshaping, when it remains flat and torn after breaking from its globular form, and constitutes the delicious brown component. The odour and flavour are mainly due to these modifications. No. 4 exhibits this phase.

As the melted fat cools down, strange little rosette-like figures arise here and there. These extend their margins until all are in contact with each other. The tallow from suet behaves similarly. Thus, when the gravy is hot it consists of many filmy globules; and when cold and white, is composed of amalgamated rosettes and spheres with dots and lines radiating from their respective centres. These details are shown in No. 5.

I have already said that glycerine accompanies the true fat or oil. All the glycerine in commerce is derived from animal fats and oils; though not many people seem to be aware of the fact. Some animals—such as the bullock—possess more of the fat, familiarly called suet, than others; but all of it, from whatever source obtained, is chemically the same. In the fowl other ingredients are combined with it. The present remarks are, however, applicable to its constitution. The fat consists of a so-called fatty acid (which is really a wax when isolated) and glycerine. By distilling the substance in water it is separated into aqueous glycerine, on which floats a compound of fatty acids. The glycerine needs refining after separation from the water. Its chemical name is glycerol, and if it is gradually heated it will entirely vanish, leaving not the slightest trace. This fact shows that, notwithstanding its sweetness, it has no connection with sugar, which becomes syrupy or carbonised when heated.

The fatty acids consist mainly of stearine, palmitine, and olein. These when purified (except olein, which cannot be solidified) are called, respectively, stearic and palmitic acids. They are the hard *waxes* of which candles known by those names are manufactured. Soap can be made by boiling caustic soda, or caustic potash, with some of the fowl's fats and oils.

Concerning the lean portions of our fowl, we can obtain some enlightening disclosures. In the upper part of No. 6 are shown some flesh fibres in their raw state. Beneath them are depicted a similar bundle after having been baked. In the latter case the fibres have shrunk to a much narrower diameter, and also telescoped so as to produce the appearance of rings or bands. At the same time, chemical constituents have bubbled out from the ends of the fibres, or from holes formed in their sides.

Boiling and stewing exhibit peculiarities. By using salt water the salts of the flesh are prevented from dissolving out, as they would do in plain water. When stewed in a pot standing in another containing hot water—in the same way that glue is prepared—the juices are almost wholly retained.

WHO'S WHO IN THE POULTRY WORLD.

MISS A. S. GALBRAITH.

"MOST of the 'Who's Who?'" writes Miss Galbraith to us, "have promoted clubs, or are presidents, or lecturers, or something—I haven't a distinction of any sort, except this, that I belong to no group of any kind, have neither religious, political, social, poultriological, nor any other kind of connection, am not even a member of a circulating library!" Yet, and despite these surface disqualifications, Miss Galbraith is a personality who has made her mark on the poultry world with



MISS GALBRAITH.

a wise and often witty pen. She is well known as a stalwart upon the still simmering fox question; she has written learnedly upon inbreeding and other living problems of poultrydom; and her views, if, like most views, controvertible at times, are always backed by a common-sense logic.

Miss Galbraith became a poultry-farmer for reasons of health. A native of Glasgow, she aimed at a University degree, but was prevented by a serious breakdown from obtaining this. Every kind of study had to be given up, every social and other interest; and she had to spend six years of inactivity in Central Europe. Then she came back to Surrey and gardening, but again illness forced her to give up the latter pursuit, and to be content, in her own words, to "only potter round with the birds." She found, however, that her University course in human physiology, chemistry, foods, &c., and more especially an early habit of field wandering among wild life, were invaluable assets to the practical business of poultry-farming; and so the one hen with which she started operations swelled to a couple of hundred or so, and the pottering became a serious occupation. It is the more serious because with characteristic independence she does everything herself in connection with her birds, and everything except the roughest work for the goats, rabbits, donkey, &c., that comprise the rest of the farm stock.

MR. JAMES BATEMAN.

FOR generations the "North Country" has produced some of our most famous poultry-breeders. We generally think of Lancashire and Yorkshire in this connection, but the adjoining counties of Cumberland and Westmorland have exerted an equal influence. The cock-fighters of those counties and the adjacent area of Furness have their lineal descendants, who, happily, have turned their skill in more praiseworthy directions. Among these may be named Mr. James Bateman, of Milnthorpe, who for something like twenty years has been an enthusiastic and a successful "amateur"—using that term in its best sense—breeder of Plymouth Rocks, Wyandottes, and Leghorns. Duckwing and Buff Leghorns, more especially the last-named, in the early days when these were largely wanting in fixed character, received his attention, and he shared to a considerable extent in the improvement of the Buffs, and in giving them the position they hold more perhaps in other than this country. Buff Wyandottes and Buff-laced Wyandottes were successfully bred by him until they attained the acme of their popularity.

Immediately the Buff Plymouth Rock was recognised by the American Poultry Association, he secured the first prize cock at the World's Fair Exhibition, Chicago, and they have held his attention ever since, though the other varieties are also kept. More recently he has been devoting himself to the Blue Wyandotte, which he thinks has a great future, equally as a show bird and for utility purposes. Whether the difficulties inseparable from breeding blue plumage can be overcome remains to be seen, but there is a fascination in the attempt which grips some of our most skilful breeders.

Mr. Bateman has many Northern qualities, among which may be named earnestness of purpose

and grim determination, with that geniality for which Westmorlanders are famous. One thing we cannot but admire is that he refuses to become an ultra-fancier, though essentially a fancier, for he believes firmly, and has put his faith into practice, that in normal breeds exhibition and utility may go hand-in-hand. He is equally strong in respect to plain but ample food, and good runs in chicken-hood are essential factors. Many hundreds of



MR. JAMES BATEMAN.

prizes have been taken by him, and his record at the recent Crystal Palace Show is noteworthy in that thirteen birds of his breeding in different races won prizes, inclusive of three challenge cups. With Mr. Bateman poultry is a hobby, a clean, healthy, invigorating pursuit.

MR. WILLIAM H. COOK.

THE name of Cook is one to conjure with, and anyone bearing it in the poultry world has a considerable score to his credit. But when with that are combined early inspirations and aspirations in the environment, first at Orpington and afterwards at St. Mary's Cray, where the late William Cook carried on his great business, the emphasis is still greater. In fact, under such conditions it was hardly possible to escape being a breeder of

poultry, for to be that was natural. Therefore no surprise need be felt when it is stated that from the earliest time to be among poultry, to talk chickens, to think breeding-fowls, were his normal condition. So early was this instinct developed that in 1889, when only fifteen years of age, Mr. W. H. Cook made a trip to Australia, taking out with him a large consignment of poultry—no light undertaking for a youngster—but he successfully fulfilled his task. Since then he has visited many countries on similar expeditions. In 1903 he conveyed a large team of birds to New York, and assisted his father in judging the Orpingtons at the Madison Square Show the following year. It was that event which led to the establishment of a farm in New Jersey, which he managed for a time.

Events led, as they generally do, to division of forces, and in October, 1904, Mr. William H. Cook



MR. W. H. COOK.

removed to St. Paul's Cray, where he established on his own account what is called "The Model Poultry Farm," which has steadily grown in extent and success, and is one of the largest breeding establishments in this country. As an exhibitor he is well known, and how many clubs and societies he is associated with requires more calculation than we can at present give, whilst as judge his name frequently appears on schedules of poultry shows. Heredity, early environment, education, and personal predictions have all conspired in the case of Mr. W. H. Cook to give him a leading position among poultry-breeders.

THE COMBINED SPECIALIST CLUBS' SHOW.

By WILLIAM W. BROOMHEAD.

THE Combined Specialist Clubs' Show was held in the Artillery Drill Hall at Sheffield on December 7 and 8, and I am very pleased to say that success crowned the efforts of those fanciers who promoted it. It was the first venture of its kind held in England, a show inaugurated solely for the benefit of specialist poultry clubs, and it fulfilled its mission. It brought together the very best of the poultry bred in this country for exhibition purposes, and it proved a great object lesson for those people who imagine there is not much if any use in fancy birds. The venture was supported by twenty-three clubs, most of them for single varieties only; and although the entry was not as large as it might have been, it was by no means small. The total for the 285 classes—there were three "A" classes—was 2,661, which works out at an average of over nine a class, and it included sixty-one classes with less than half a dozen entries each—viz., twenty-three with five, seventeen with four, twelve with three, six with two, and three (in the Bantam section, for trio of Pekins at £2 10s., Barred Plymouth Rock cockerel, and Buff Plymouth Rock hen) with one entry each. Such small classes as these would probably be cancelled at most of the classical events of the season, but at the Combined Show the only classes in which there were no entries were two for a breed that is now, I believe, defunct—the Andalusian Bantam. The biggest classes in the show were for Single-combed Rhode Island Reds, the class for male birds numbering forty-two and that for females thirty-six, while close up to them were Buff Orpington cockerels with thirty and Black Langshan pullets with twenty-nine.

Of the birds on view there is not space to say much. The catalogue opened with breeding-pens for Wyandottes only, but they were not strongly supported. It is a pity, since the object-lesson to novices of trios mated to produce exhibition specimens should be useful. In most cases, however, the classes provided for novices in the various sections had some good entries, and many of the clubs put on such classes, the exceptions being Langshans, Jubilee Orpingtons, Rhode Island Reds, Sussex, Orpington ducks, and variety Bantams, which specialist clubs do not cater separately for the novice. Some seventy exhibits were entered in the Ancona Club, and one fancier secured three of the four first prizes for single-combed birds.

Andalusians made quite a nice show, and the pullets were particularly good. Indian Game came up well, and the prizes were well distributed. There was a most satisfactory entry of Black Langshans, and the same may be said of the Blues, but Whites were poor, possibly because only one class was provided for the variety. There was by no means a large collection of White Leghorns, but the very best birds were penned. There was good quality in Rose-combed Black Leghorns, though not a strong entry; and one exhibitor took the three first prizes in the open classes.

Black Minorcas made a good show, but Whites were not catered for except in Rose-combs. There was a splendid collection of Black Orpingtons, and

in this variety one exhibitor won the four firsts for open competition, and in addition secured six cups and won outright the twenty-guinea challenge cup for the best pair of young birds. Buffs, too, were very numerous and of grand quality, and the winning cockerel was awarded the Poultry Club cup for the best Orpington, four of the six judges engaged for the breed deciding in its favour. Whites came up very well, although the Rose-combed branch was somewhat poor; it is, however, practically a new one. I have seen better quality in Jubilee Orpingtons, and larger entries; but the club is yet in its youth, and the variety has a strong rival in the Speckled Sussex. Plymouth Rocks were numerous, although here and there were weak classes. There is no doubting the popularity of the Rhode Island Red, and with 111 entries in four classes the club show can truly be described as the success of the season. The breed has obtained a solid footing in this country, much of which is due, undoubtedly, to the unflagging energies of the hon. secretary of the club, who has never failed to boom the breed. The Sussex, too, were a surprise to most of us, and I, for one, was very glad to see members supporting the club show in such a splendid manner.

The Gold and Silver Laced Wyandotte Club show was better than the one held last year, and most of the best birds of these varieties were present. Whites were strong, but the male birds were of rather better quality than the females. There was a very nice average entry of Partridges, and despite what has been said of the decline of this variety there is every reason to believe that it is making many new friends, since the novice classes were keenly contested. As regards entry and quality, the Silver Pencilled were quite satisfactory, and there appears to be a revival in this charming variety. Columbians came up well, and the variety is going ahead, no doubt about it. Orpington ducks were not over-numerous, but the breed may be said to be still in the days of its youth. It is a very difficult matter to get a good level tone of colour in the Buff variety, too many of the birds on being handled possessing a tinge of blue and some showing it in the form of bars across the wings.

The weakest classes in the show, from a numerical point, were, as I have mentioned, in the Variety Bantam Club section, but there was a most interesting collection of the "wee yuns" on view. The Indian Game were distinct from the other breeds, since they are fostered by the Indian Game Club, and they were in every way satisfactory. Booted appear to be getting scarce; it is a charming breed, and at one time was rather popular among fanciers of Bantams. Wyandotte Bantams are forging ahead, and some really typical little birds of this breed were shown. Some novelties turned up in the any other variety classes, two or three Hamburgs, Rumpless, and possibly the latest in Bantams, Buff Sebrights, a cock getting third prize in its class and a hen second. I noticed that these birds were described as Buff Laced Sebrights. If a Sebright Bantam is not laced, then—it is not a Sebright! I hope that no one contemplates bringing out a White or a Black Sebright.

So much, then, for the fowls. The show, as I say, was a success, and there is every reason to believe that the second "Combined" will be held this year, but, I hope, at an earlier date.

WINTER WORK.

I.—THE BREEDING STOCK.

THE final selection of the breeding stock will, in all well-managed poultry-yards, already have been made some weeks, maybe months, ago. It is a great mistake to leave the selection until the late autumn or early winter, not only because this probably means that it is done in a hurry, but also because it will have given no opportunity to dispose of the surplus stock. The most satisfactory way of sorting out the breeders is to examine the birds every few weeks from the time they are a couple or three months old until they are fully matured, as in this manner the wasters may be disposed of at once, so economising valuable space, labour, and food. It is true that breeds vary greatly as to the age at which they reach maturity, but even with slowly growing varieties it is generally possible to distinguish the poor birds from the good while they are quite young. We may reasonably suppose, however, that the final selection has been made to the poultry-keeper's entire satisfaction. He has disposed of all the birds that do not come up to his standard, and he has retained nothing but good quality stock. This is only half the battle, however, so far as the production of winter eggs is concerned, for the management of the stock during the winter months is extremely important, and has an enormous influence upon the health and prolificacy of the hens. The finest birds may be retained for use in one's own yard, but if they are neglected or treated in an unsatisfactory manner, eggs probably will be conspicuous by their absence.

Generally speaking, stronger germs and more vigorous chickens are produced from two-year-old hens than from pullets. At the same time, the difficulty may be overcome by mating a cock at least two years old with the pullets, as the offspring from such are usually strong and hardy. Pullets mated with a cockerel are generally unsatisfactory, and lack stamina. In the same manner two-year-old hens are better if they are run with an early-hatched cockerel, and they throw better chickens than if both parents are in their second season, besides which it is invariably found that a larger percentage of eggs contains a germ. Early in the season old cocks are often sterile, as a result of delay in recovering from the moulting period. It is important that the male bird shall be unrelated to the pullets or hens, for the crossing of unrelated strains undoubtedly makes for health and vigour. Inbreeding sometimes cannot be avoided, and provided that it is done carefully by a fully experienced person no harm ensues, but it is merely running an unnecessary risk to use related parents when it is possible to avoid doing so.

The exact formation of the breeding-pen depends upon a variety of circumstances, and it is misleading to say that such and such a number of hens should be mated to one bird. Some varieties are considerably more vigorous than others, and the cock is able to attend to more hens than is one of another breed. When breeding stock are enjoying a free range, more hens may compose the pen than when they are confined in a run, while early in the season—that is, during December and January—the

pen requires to be smaller than it does later in the year. As a general guide, but only as a general guide, the following numbers may be given: Early in the season fowls enjoying a free range and belonging to the laying or non-sitting class may be mated in the proportion of about eight or ten hens to one male bird; as the season advances this number may be gradually increased, until towards the end of the spring fourteen and even sixteen hens may be run with one cock. General purpose fowls, under similar circumstances, should be mated in the proportion of five or six hens to one male bird early in the season, gradually increasing to ten or twelve towards the summer.

A considerable loss occurs in many poultry-yards, particularly during the winter months, as a result of a proportion of the eggs required for hatching failing to contain a germ, which, of course, renders them quite useless. There are several causes to account for the production of sterile eggs, but it must be confessed that, no matter what one may or may not do, it sometimes happens that a certain proportion of the eggs wanted for hatching are infertile. A very common cause is that the breeding-pen is badly composed—that is, too many hens are mated to one male bird. This point was dealt with, however, in the preceding paragraph. Undue forcing during the early stages of the pullets' growth is responsible sometimes for this trouble, and there is no doubt whatever that birds that are allowed to grow slowly make far and away more satisfactory breeders than do those whose development is unduly forced. Inbred fowls are more liable to produce sterile eggs than are those which are the offspring of unrelated parents. This is another argument against inbreeding. If the stock birds are in a very fat condition they are always more liable to produce sterile eggs than are those in a lean and hard state. Not only are fat hens more likely to produce infertile eggs but they are less prolific. It is not always an easy matter to keep hens in a lean condition during the winter, when exercise is difficult to obtain, but every effort must be made to do so, since fat hens are generally so unprofitable.

Suitable feeding is an important factor towards a satisfactory egg supply. Foods that are strong in carbohydrates and fat should be given the preference, for the aim is to maintain the bodily temperature. If the animal heat is all or nearly all absorbed in keeping up the bodily temperature, there is naturally little or none left to assist in the formation of eggs. The first meal of the day should consist of warm mash, since after the long fast of the night the birds need something that is easily digested. For the opposite reason hard grain is recommended for afternoon use, as in this case a food is required that takes a long time to assimilate. An excellent ration for morning use consists of three parts barley meal, two parts middlings, two parts bran, one part bean or pea meal, one part maize, and half a part of lean meat. A simpler mixture consists of two parts barley meal, one part middlings, and a quarter of a part lean meat, but it is worth the trouble to take a little pains in this matter, and employ the rather more elaborate preparation. Barley and wheat are the best grains for afternoon use. Green food is very necessary indeed; so are grit and fresh drinking water.

The question of housing is an extremely impor-

tant one, and it really needs, to do it justice, a whole article to itself. One or two of the most important details may be mentioned, however. The roosting compartment must be quite dry, well ventilated, and free from draughts. Damp is fatal to success, and birds having to roost under such conditions are always very liable to colds and other more serious complaints. Lack of abundant fresh air is also a common cause of ill-health, and arrangements should be made for a gentle current of air to pass through the house, well above the heads of the birds, which removes the used-up, vitiated air and allows the fresh to take its place. At the same time, draughts must be avoided, for these are even worse than insufficient ventilation. The roosting compartment should contain a large window, for light is one of the greatest purifiers we have; a place that is always dark is almost invariably damp and dirty. It should always be the endeavour to make the sleeping quarters as cosy and attractive as possible, because during the winter months twelve and fourteen hours a day are spent within the house. Suitable perches, and clean, roomy nest-boxes should likewise be provided.

A small covered run is a great boon during the winter months, and one season's use will easily repay the extra cost by the increased prolificacy of the hens. It does not require to be very large, just roomy enough to give the birds a place wherein they can get exercise and so keep themselves in fit condition. For a breeding-pen a scratching-shed measuring about eight feet by five feet answers the purpose, although, of course, if it is bigger so much the better. The front should be almost entirely open, with just sufficient protection to keep the rain from entering. A sloping shutter about two feet wide, and fastened at an angle of about 45 deg., will keep the interior dry and warm. The floor should be covered with some kind of litter, preferably straw or chaff, and it is an excellent plan to scatter the afternoon corn among it, so as to afford the birds exercise. On very wet days, when the hens are better under cover, half rations only of soft food should be provided, followed in about an hour with some grain thrown down in the litter, which will keep the fowls busily occupied till midday. About 2.30 or 3 p.m. another supply should be scattered.

II.—REARING.

By FRED. W. PARTON.

WITH a good reliable incubator one can hatch with an equal amount of success in winter as at any other time of the year, although too often the importance of having a good room for the working of the incubator is overlooked, and a room that answers very well in spring may be quite unsuited to the colder months. Whatever place is utilised for the purpose should be of such a nature that the machine cannot be affected by the outside air. I found in France that the temperature of the room and its powers of resisting atmospheric changes receive almost as much attention as the incubator itself, and no doubt the results amply justify the care in this matter.

However, I am dealing more with the question of winter rearing than the working of incubators—

not but what the two subjects are closely connected since those who rear in winter must hatch in winter, and to do so the great majority of breeders must adopt artificial incubation. It is not, however, intended to imply that *all* those who breed in winter use incubators, since by a little judicious management "broodies" may be had in plenty during this season. One of the most successful exhibitors of to-day, whom I lately had the pleasure of visiting, is always among the first to welcome the early chicken, and for these early hatches, which are so plentiful with him, the Silkie is employed. This is indeed a wonderful sitter, and after a dozen eggs are laid invariably "chuck." Despite all this, however, artificial rearing is mostly in vogue during the winter months, and a few hints in this direction may be of service, especially to those who are

will certainly not give adequate space for the rearing of the number of chickens that the maker of the brooder declares it to be capable of accommodating. This is particularly noticed by the smell arising when the lid is opened in the morning. Overcrowding is a fatal and a very common mistake, and must be guarded against very rigidly. Young stock must continually have their quarters increased in proportion to the extent of their growth, hence the necessity for a systematised method of thinning them out.

A mistake is frequently made by the too early removal of the chickens from the drying-box or egg-chamber of the machine. When the chicken has emerged from the shell, twenty-four hours, or longer, in the drying-box will certainly do no harm; as a matter of fact, the chicken is gaining strength,



A WRINKLE FOR WINTER REARING.

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A Canvas Shutter can be Drawn over the Front on Wet or Cold Days.

making their initial attempt at early rearing, and the number of such persons is increasing year by year; and since the demand for eggs is growing so rapidly, the non-sitting breeds are kept on a larger scale than ever before. Consequently there is a corresponding increase in the artificial methods of rearing.

Brooders to-day are so plentiful, and are constructed on such hygienic lines, that one can scarcely go wrong in one's choice; at the same time, it must be admitted that with the majority of rearers the sleeping quarters are much too cramped, and

and is better able to bear the great change in temperature. Now and again the question of the cause of white diarrhoea in chickens crops up, and this is put down to various causes; egg-food and want of egg-food have both been held responsible for the scourge. May it not be caused by the sudden change in temperature, not, perhaps, by the difference between the temperatures of the drying-box and the brooder, since this does not vary to any appreciable extent, but rather by the sudden change in the atmosphere during their conveyance from the incubator to the brooder too soon after hatching? It is quite pos-

sible that there is some little distance between the two, and during their transit from one place to the other a chill may be contracted.

It is frequently advocated that many chickens are spoiled by the overheating of the brooder; that may be so, but how many suffer through an insufficient amount of heat? There is, of course, a medium, and extremes in either direction are equally bad, but I am strongly in favour of giving plenty of warmth. The brooder should be placed in a good sheltered position, sheltered especially from wind, which, however well the machine may be made, will find openings through which it may enter. Adequate shelter should be provided in addition to their sleeping accommodation; this is absolutely necessary for the early broods. They must have shelter and warmth to which they may run for protection when they feel the need for the brooding they would get were they cared for by their natural mother. After the first week in the brooder the heat should be gradually lowered, until at the end of six to ten

so that it may be fresh and free from taint for the coming of the new inmates. Unless perfect cleanliness is observed chickens will never thrive as they otherwise would. In this direction very frequently the importance of light in the sleeping compartment of the brooder is overlooked; light and good ventilation are both helpful in keeping down insect pests, which inevitably accompany dirt, and both are encouraged by darkness. A further, and undoubted, benefit is derived by the chickens having a frequent change of position; it is almost incredible how very soon soil over which chickens run will become bare and tainted. Even when chickens are but a week or two old, close observation of the patch upon which they exist will reveal the fact that a frequent change is imperative. If their removal is daily, the same patch may come into use two or three times during their occupancy of the brooder.

A great deal depends upon the early feeding of chickens, since this very largely makes or mars their future success. Diversity of opinion



SEVERE CONDITIONS FOR WINTER REARING.

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weeks the chickens are depending upon their own natural warmth.

No hard-and-fast rule can be laid down, since the weather conditions and position of the brooder, whether near farm buildings or out in the open fields, are all factors to be regarded before this matter can be definitely decided. As a rule, however, it may be taken as a general principle that the temperature for the first seven days should be up to 90 deg.

The early batches of chickens make much quicker progress than those that follow later, due doubtless to the fact that they are the first occupants of the brooders and that they enjoy the freshness of the soil, which, to a certain extent, has grown stale for those that are to follow. Between each occupancy the brooder should be thoroughly cleaned and well sprinkled with Condly's Fluid or other disinfectant,

exists as to whether dry grains or soft foods are to be preferred. Both doubtless, for their specific purpose, possess great virtues, and each individual must determine for himself which method he adopts, in accordance with the object he has in view. I have invariably had the best results from a combination of the two methods of feeding; that is, giving two regular feeds a day of soft food, the first the morning feed and again at two o'clock in the afternoon when the days are very short. The second feed may, however, be later as the days lengthen, since about two hours should elapse between their second soft feed and the time at which they retire to their sleeping-room. This two hours' interval will enable the chickens to do some scratching exercise and find for themselves a full crop of grain, which is more sustaining during the long winter night than soft food only. The

small seed should be thrown among chaff or chopped straw, which will keep the chickens busy during the greater part of the daytime. One manifest advantage of "dry" feeding is the variation the mixture contains, since the birds' growth and condition generally are greatly assisted by a mixed dietary, and, as a matter of fact, this applies not only to chicken feeding, but to their sustenance throughout life. Whatever the object in feeding be, whether the chickens be destined for future breeding stock or for killing before they reach six months old, the same thing applies—they should have a varied diet. The soft food may consist of coarse oatmeal made with milk into a very stiff porridge; this will be found especially suitable when the weather is very severe. Variation in the soft food may be had by using finely-ground barley meal mixed with one-third fine sharps; boiled rice, dried up with oatmeal; any of the usual chicken meals well soaked in scalding water, or, when it can be had, milk. Young and tender green food should be regularly and plentifully supplied; small quantities of meat scraps, table scraps, or other forms of animal food are of inestimable service during the growing period. Separated milk to drink is valuable, since the phosphates and lime considerably help bone formation.

III.—FEEDING.

FEEDING is not the whole art of production, but it is an important branch, and although it has been pointed out that no method of feeding will add to the number of primitive eggs within the ovary of a fowl, it is a matter of practical experience that the rate of development of such as do exist, and the commencement and duration of periods of production, are largely influenced by the feeder. There are many incidental and individual factors that prevent the general application of any system with equal chances of success; but, subject to such unavoidable modifications, the broad principles involved in feeding for given purposes hold good, and it should be one of the aims of the practical feeder to ascertain by actual experience how far and in what direction any deviation from the normal is necessary or justifiable in his particular circumstances. It often happens that winter laying and hatching results are arbitrarily local, the good record of one farm being reversed upon the adjoining holding—the feeding being to all intents and purposes similar; and in many such cases a careful investigation of the neighbouring conditions shows that the aspect, or physical formation, is sufficiently divergent to necessitate a different dietary for the two flocks, and that both cannot be fed according to text-book rules. By way of a more concrete example, it may be said that maize is one fowl's food and another fowl's poison—so do circumstances alter cases.

Speaking generally of fowls run upon farms, or otherwise allowed a considerable measure of liberty, the quality and quantity of the food supplied must be necessarily varied according to the character of the season and the abundance or scarcity of food to be found in the fields, as well as the extent of accessible area. Some farmers have the knack of producing fat instead of eggs, even in the most severe winters; whilst others achieve an excellent production by the use of what would be considered the most unorthodox mixtures for feeding at any

season. In order to arrive at workable conclusions apart from modifying influences, it is essential to consider the foodstuffs commonly available, of which there is a sufficient series of grains, meals, roots, &c., for a great variety of mixtures and combinations—and variety is essential to success in feeding. Nevertheless, any considerations of this character that are limited to analytical tables and mathematical calculations are usually productive of more harm than good, and although such knowledge is helpful to those possessing practical experience, of the two extremes there is more hope for the man who "takes them as he finds them" than for the other whose knowledge is solely confined to foodstuffs in the test tube and other appliances of the laboratory. To take wheat first, it is in most cases too expensive for free feeding even if it were very desirable, which it is not to any great extent; a proportion should be included in almost any circumstances, but unless the range is large the allowance must be small, otherwise the fowls will acquire more fat than is consistent with a productive condition. Barley, although useful for some purposes and used extensively in the form of meal for fattening, is not generally suitable for feeding stock birds—our present subject; it is often recommended as a food for pullets before laying, but other foods are preferable. Maize is theoretically objected to, but in some circumstances of its use it is a good and economical winter food for laying stock, and must not be hastily or sweepingly condemned. The farmer's use of maize has been almost universally pointed to as the source of all his poultry troubles, but there are very many who realise its profitable uses as well as its limitations. Of all cereals, perhaps, oats constitute the best and safest staple food for feeding stock birds, particularly in the winter months when they are less likely to fatten readily—although the fattening properties of oats seldom affect the laying condition of fowls running at liberty. The reputed objection of fowls to oats is more often due to the feeding of inferior grain than any other cause, and a disinclination to consume an undue proportion of husk is quite understandable; moreover, in adopting the method of feeding one description of grain at a time, any possible fad of this sort is quickly overcome by hunger.

Of the various meals, that most generally useful (and commonly obtainable) for the feeding of stock is middlings or sharps—also known by a variety of local names. This meal varies perhaps as much in quality as it does in name, but fine sharps, when available in a pure state, forms an important ingredient of warm food mixtures, both on account of its intrinsic feeding value and the bulk it adds to the other ingredients. For the winter feeding of stock birds fine sharps will serve the purpose as far as meal is concerned, although if bran is available it is sometimes beneficial if scalded. Ground oats of fine quality, although primarily a fattening food, is sometimes fed in limited proportions to the stock; but it is necessary to remember that it is an expensive food for the purpose—and biscuit meal need not be considered in the present connection, for the same and other reasons. In connection with soft food mixtures it is necessary to refer to meat or meat substitutes, a factor of considerable importance in the winter feeding of stock—particularly present laying stock. When fresh meat of any description is available it should be boiled before use, but if it is not readily obtainable a

meat meal is perhaps the next best to use, and after that freshly cut green-bone; but in no form is it generally desirable to feed meat more frequently than on alternate days, and in many cases every third day will suffice. Relative to the use of peas, beans, and their resultant meals, as substitutes for animal or meat foods, the remarks relative to careful and occasional use apply even more forcibly; and in every situation where fresh meat is obtainable in any suitable form, it is to be preferred to any of the usual substitutes.

With regard to green food, the practical feeder of other stock realises well enough that the feeding value of grass is at its lowest in winter, and he remedies the deficiency accordingly, but too often neglects this item in the arrangement of the fowl's dietary, although the farmer need never be at a loss in this respect. Roots may be boiled and fed with the soft food mixture, cabbage greens are available, and finely cut and scalded clover hay is not much trouble to prepare; swedes may be split and fed raw, but not to excess. Grit and shell are generally necessary, and it is usually a mistake to suppose that a sufficiency of grinding and shell-forming material may be found on a free range; in most cases it is profitable to supplement the available supply. So much for the commonly necessary food-stuffs, and although there are others of more or less value for the purpose, those mentioned are usually easily obtainable and comprise the most generally useful for the farmer or other relatively large stock-feeder; including, as they do, not only suitable foods for laying hens, but also for the feeding of stock turkeys and geese—descriptions that are too often somewhat neglected during the winter months. This tendency to neglect stock birds that are not in immediate profit is a common fault, particularly in connection with the birds mentioned, and during the present season; whereas if they are to come into profit in due season their present condition, and its maintenance by adequate feeding, is a pressing necessity.

In the winter feeding of stock, with a farm or other suitable range, the feeding of a soft food mixture in the morning, with grain food at night, should be sufficient in most circumstances, with such modifications as may be dictated by the necessities of the moment, such as the temporary requirements of the exceptional use of shelters or scratching-sheds in spells of severe weather. Whenever possible, it is preferable to feed the fowls on the grass and keep them running, only confining them when absolutely necessary, feeding the sharps, meat, and cooked vegetables early, and oats, wheat, and maize on successive evenings—taking care not to over-feed. As regards quantities and proportions, no very useful purpose would be served in drawing up a table of rations, the present object being to suggest generally suitable foods and to leave some scope for the exercise of common sense in relation to the requirements and circumstances of the individual.

Cock-Crowing Matches in Syria.

The sport of cock-crowing is very popular in Belgium, but it is also known in Asia. We recently learnt that it is followed with great avidity in Syria and Asia Minor. In the Smyrna district is a breed called Denizeli, which is largely kept for this purpose.

TWO LITTLE-KNOWN BREEDS.

A WRITER more than two hundred years ago stated that most of the fowls in the State of Virginia were unadorned with tails, and suggested that there was some influence which led to loss of the caudal appendage in that section of America. The same peculiarity has been noted in other parts of America, due, doubtless, to breeding and crossing with fowls so distinguished. It is evident, however, that it is certainly not peculiar to America, and had its origin in Asia, where such birds are by no means unknown. They are also mentioned by many older European writers. The influence is very strong, due to the fact that there is a distinct loss in that part of the posterior called the "parson's nose," which supports the tail feathers, as a result of which the saddle hackle falls over the stern, giving an abbreviated appearance which is destructive of the balance between back and front. If the theory which has been promulgated that the less feathers the better be correct, this absence of tail is a gain, although the aspect is less pleasing. It is true that the tail-less or rumpless fowls are good layers, and, in some cases, carry a good quantity of flesh. Specimens are found both among Bantams and medium-sized breeds, and we have seen some remarkably good birds with Game plumage.

The origin of the Frizzled breed of poultry appears to be Asiatic, for such evidence as is obtainable indicates that it is found in Southern Asia and the Eastern Archipelago. Lewis Wright states that it is well known in Ceylon and the Mauritius. Whilst ordinary races occasionally show the peculiar reversion and curling of the feathers



TAIL-LESS FOWLS.

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that are characteristic of Frizzles, from which we may learn something as to its causation, such does not explain the remarkably wide distribution of birds in which the strange feature is not only



FRIZZLED FOWLS.

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present in individuals, but is transmissible, in fact, a breed character. The feathers are, as a rule, thin and open in texture, not affording that protection to the skin which is generally the case. This is, however, compensated by a downy covering of very fine, soft feathers having the same effect. The great feature is to secure that all the plumage, save that of the tail, shall be equally and evenly curled, in which respect many exhibition specimens are remarkable. The prettiest birds are either all white or all black, but colouration is very varied. They are short in the leg, and vary considerably in comb, some being single, some rose. They are, when naturally bred, hardy, make excellent sitters and mothers, and fair layers, but the eggs are small.

THE MALAY FOWL.

AMONG the oldest breeds of domestic poultry the Malay fowl occupies a unique position, and there can be little doubt that it has played a highly important part in the poultry history of the

world. The breed is indigenous to certain parts of India, the Mauritius, and Malay Archipelago, although the stamp of bird bred and fought in the latter islands—the Malay fowl is used largely for “pit” purposes in the East—differs in no small degree from that seen at the present day in the show-pen of our country. For some years now its home in England has been in the South-West, and although to a certain extent popular even to-day, it is nothing like such a favourite as it was in the early days of poultry exhibitions. Then the Malay fowl was the giant of the poultry world, and it was much in vogue for crossing with other breeds to improve the size and flesh of table-poultry. But breeding for fancy points has removed from the Malay some of its original strong points.

Many of the prominent and most striking characteristics of the breed have been almost lost, and there has been a tendency to tone down the extremely angular type of the bird, its sulky and cruel expression, and the length of its neck. Then, again, many fanciers appear to imagine that the Malay is a bird of feather, but such it was never intended to be, and, to a certain extent, the less



THE MALAY.

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feather it carries the greater its “beauty.” The long and broad head with the heavy beetling brows have been almost bred out, the wings and shoulder-butts are not as prominent as they were, the throat

is inclined to be feathered, whereas it should be raw, like the face, and the whole style and finish of the bird have been altered from the original. The true Malay type is gaunt, angular, and stilty, the head cruel-looking, the throat and face bare, the neck long and well curved, the shoulders broad, prominent, and well set, the stern fine and narrow, the thighs long, stout, and muscular, and the shanks strong, straight, and rounding to the spur. The plumage must be hard, close, spare, and lustrous, the skin of the turn of the breast-bone showing through the feathers, and the shoulders bare at their points. The cock's tail should be carried low and the sickles only slightly curved and tapering to a fine needle point, while the hen's tail is rather short and square, neither whipped nor fanned, and carried slightly above the horizontal.

FANCIERS AND FANCY MATTERS.

By WILLIAM W. BROOMHEAD.

Cuckoo and Blue Orpingtons—The "Royal" Show—Variety Wyandottes—Specialist Club Elections—Langshans—Modern—Leghorn Type and Comb.

CUCKOO AND BLUE ORPINGTONS.

I hear from Mr. Arthur C. Gilbert (of the Swanley Poultry Farm, Wilmington, Kent) that he is forming a club for Cuckoo and Blue Orpingtons, of which varieties, it may be noted, he claims to be the originator. The club is to be known as the Cuckoo and Blue Orpington Club; the annual subscription has been fixed at five shillings, and the life membership fee at two guineas. Even at this early stage a five-guinea cup has been promised for Cuckoos; and doubtless before the first club show is held there will be sufficient cups to have at least two for each variety. The Cuckoo is already a recognised variety of the Orpington breed, in that it was accepted by the Poultry Club Council some time since—prior to the new rule governing the introduction of new breeds and varieties—and a standard for it appears in the fourth edition of the Poultry Club Standards, published last year. The Blue will come before the council at this month's meeting. It may here be remarked that, according to the standards just mentioned, the colour of the Cuckoo is set down as blue, "blue-grey (light shade) ground colour, each feather barred across with blue-black (dark shade), the markings in keeping with the size of the feather." It must be admitted that this description is somewhat vague, compared, for instance, with the standard for the Barred Plymouth Rock given in the same publication. Nevertheless, I think it is sufficiently explicit to show that the colour must not be black and white. Some fanciers appear to be under the impression that the Cuckoo Orpington should be similar in markings and colour—except colour of shanks and feet—to the Barred Plymouth Rock; but, unless I am greatly mistaken, this is not the idea of the originator. Certainly the vast majority of the Cuckoos which have been exhibited so far have been practically first crosses with the Barred Rock; and it is doubtless due to this that in certain quarters a Barred Orpington has been advocated. The Cuckoo markings and colour, however, are more difficult to produce, and in my

opinion they are altogether prettier—hence I hope they will not be submerged into the Barred. Then, too, there appears to be some difference of opinion as regards the colour of the Blue Orpington. When I judged the variety at the Crystal Palace Show in 1909, one exhibitor, whose birds had failed to get a look-in, did not hesitate to rate me soundly because I had selected birds of similar colour to the Blue Andalusian. Other Orpington specialists, however, bore me out last year; and both at the Palace and at Birmingham the winning Blue Orpingtons were of a slate-blue colour, laced with a darker shade all through, except the head and neck (and in the cock the hackles, wing-bow, and tail), which were dark slate-blue, almost black—the standard that has been set up by Mr. Gilbert. I admit that the new fashion in Blues is a whole colour, and almost a pigeon-blue, although few fowls—either Leghorns, Wyandottes, or Rocks—have been shown so far without any trace of lacing. It must not be overlooked, however, that the original blue fowl, whether Andalusian or Langshan matters little, was laced, and both blue varieties of these breeds are so marked at the present time.

THE "ROYAL" SHOW.

Two or three fanciers have written to me concerning my note in the November issue that the "Royal" Show is to be a five-day event this year, and asking if my statement is correct. I have before me as I write a card issued by the Royal Agricultural Society of England, to the effect that the seventy-second annual show will be held at Norwich, under the presidency of His Majesty the King, from Monday, June 26, to Friday, June 30, 1911, and that the prize-sheet for poultry will be ready for issue after January 2, 1911. From the annual report of the society, presented at the annual meeting at the Agricultural Hall, Islington, on Wednesday, December 7, I see that 580 members joined the society during the past twelve months, and that, notwithstanding bad weather on three days of the show at Liverpool, a profit of £5,482 is shown. It was also announced that acceptances have been made for Doncaster in 1912 and Bristol in the following year.

VARIETY WYANDOTTES.

I understand that an attempt is being made to float a club for certain varieties of Wyandottes, which, at present, do not appear to get much encouragement, but which only seem to need the fostering care of a club devoted to their interests in order that they may become popular both as exhibition and utility birds. The varieties for which the club—to be known as the Variety Wyandotte Club—will be formed are the Buff, the Buff-Laced, the Spangled, the White-Laced Black, the Red, the Cuckoo and the Pile. The Rev. J. W. A. Mackenzie (of Whitwick Vicarage, near Leicester) has the matter in hand; and I hear that already he has six cups and the formation expenses of the club promised, and is confident that "a strong living club will be formed for the varieties." A meeting was to have been held at the Palace Show last year, but I believe it fell through on account of Mr. Mackenzie being unable to attend. That a club, such as it is proposed to form, will do much to bring these odd and mostly new varieties to the front goes without saying; but some fanciers ques-

tion the advisability of bringing them into prominence. The Buff is an old-established variety, but it was "knocked out" some time since by the Buff Orpington; and of recent years very few Buff Wyandottes have been seen in England, although they appear to flourish to a certain extent in Scotland. The Buff-Laced, again, is not a new one; it has been tried and found wanting—to get the white lacing on a buff ground is beyond most fanciers. So far there has not been a great deal of difference between the Spangled and the Rose-combed Ancona; in fact, the general opinion of the former is that it is a coarse reproduction of the latter. The White-Laced Black, up to the present, has been nearer a spangle or a splash than a laced fowl. The Red is very apt to be confounded with a very dark Buff Wyandotte or with the Rose-combed Rhode Island Red. The Cuckoo should be distinct, but, with one exception, the representatives of this variety I have seen—and they can be numbered on the fingers of one hand, or nearly so—are decidedly of the Barred type of markings and colour, and run too near the Rose-combed Plymouth Rock.

SPECIALIST CLUB ELECTIONS.

Towards the close of the season it is customary for specialist clubs to hold their annual elections. In connection with the Leghorn, Plymouth Rock, and Andalusian Club (possibly the oldest specialist club of its kind in the United Kingdom), Mr. L. C. Verrey, as president, and Mr. G. E. Gush, as hon. secretary and treasurer, were returned unopposed, while the Rev. T. W. Sturges headed the list for vice-president, and the committee elected were Messrs. J. Wilkinson, F. Tootill, and R. Kirk. Mr. H. Wright as president, Messrs. C. N. Goode and F. H. Lowe as vice-presidents, and Miss Peel-Holmes as hon. secretary and treasurer of the Columbian Wyandotte Club were returned unopposed, while the committee elected were Dr. W. H. Tattersall, Messrs. J. Wilkinson, H. W. Buckland, and W. Moore, the nine club judges elected being Miss Peel-Holmes, and Messrs. F. H. Lowe, J. Wilkinson, W. M. Elkington, H. Wright, H. W. Buckland, C. N. Goode, W. Moore, and C. D. Milne. The result of the White Wyandotte Club election is that Mr. J. H. Richards is president, and Miss N. Edwards and Mr. R. Anthony are vice-presidents. The committee consists of Mrs. Trevor-Williams and Messrs. W. M. Elkington, W. Moore, J. Wharton, W. P. Hollis, W. Heydon, J. C. Hunting, and W. Whitely; and the club judges are Messrs. J. S. Hicks, C. N. Goode, W. M. Elkington, G. H. Richards, R. Anthony, J. Wharton, H. Peel, J. C. Hunting, W. Moore, W. Heydon, and J. A. Cowe. At the recent election of the Ancona Club Mr. J. Eadson was elected president, Mr. H. E. H. Way vice-president, and Mr. T. Layberry hon. secretary and treasurer. Six committeemen were required, but three members received equal votes for sixth place, and two tied for the tenth on the list of club judges. In connection with the Welsh United Game Club's Show, which is to be held at Morriston on the 12th inst., Mr. F. W. Forey has been elected to judge Modern Game; Messrs. Mason and Edwards, Old English Game; Mr. C. E. Waring, Indian Game, Malay, and Aseel; and Mr. R. Bebb, Old English Game Bantams.

LANGSHANS—MODERN.

Langshan fanciers have been patting themselves on the back of late. In the report of the Langshan Society submitted to and adopted at the annual general meeting last year appears the following: "Following on last year's (1909) success at the Dairy Show—when a Black Langshan pullet was awarded the gold medal for best bird in the show—it is a matter of congratulation for the breed that the winning Black Langshan cockerel this year was reserve for best cockerel in the Dairy Show." Well, it is something of which to be proud, because there is always great competition for the British Dairy Farmers' Association's medals for best in show. From the same report I see that grants for specials, &c., during 1910—in addition to the club show—were made to eight exhibitions. I should like to see that list doubled or even trebled, since it would mean that better classification had been given for the lordly Langshan.

LEGHORN TYPE AND COMB.

At the annual general meeting of the Buff Leghorn Club, the question of the show standard for Buff Leghorns was discussed, and the meeting adhered to the opinion expressed last year by the president. The difficulty in determining type by a show standard of points was thoroughly thrashed out. The fact was emphasised that, although the types of the different varieties (or colours) of Leghorns vary considerably, they are all nominally judged by one show standard of points, which is the only one recognised by the Poultry Club. It was therefore decided that, for the present, at any rate, the club would limit the expression of its opinion to type generally, and that the bird favoured by the club is rather close-feathered, of medium size, with good carriage, and tail carried at an angle of 45 deg. A big beefy comb in either sex is objectionable, and a flowing tail is a desirable ornament to the cock bird. At the annual general meeting of the Leghorn, Plymouth Rock, and Andalusian Club, it was resolved, after a lengthy discussion "That Rose-combed Leghorns be not recognised." As I have said elsewhere in these notes, the club is possibly the oldest institution of its kind in the United Kingdom; and there is little doubt that it means to adhere to ancient custom! It does not appear to recognise the fact that changes are for ever taking place in the Poultry Fancy, and long-established notions are apt at times to be upset. I must admit that I prefer uniform general characteristics in a breed; but, in the past, variations have been recognised—to wit, the Rose-combed Orpingtons and the Rose-combed Dark Dorking, to mention only two—so to admit a Rose-combed variety into a Single-combed breed is not altogether novel. Moreover, the Poultry Club long since set its seal of approval on the Rose-combed Black Leghorn, and provides for it in the Poultry Club Standards published last year. There is no fear, however, that this recent decision of the Leghorn, Plymouth Rock, and Andalusian Club will interfere in the slightest with the breeding and exhibiting of Rose-combed Blacks; it merely debars such birds from winning any L., P. R., and A. Club specials; but since they are not offered at many shows it will not make much difference anyway!

THE GOSPEL OF CLEANLINESS FOR POULTRYMEN.

Being extracts from a comprehensive report which appeared in the *Reliable Poultry Journal*, U.S.A., of the interesting and valuable lantern lecture delivered by George B. Morse, M.D., Ph.D., who is in charge of investigation of diseases of poultry and cold-blooded animals, Pathological Division, Bureau of Animal Industry, U.S. Department of Agriculture, Washington. This lecture was very practical in character, and should prove of great help to earnest poultry-workers everywhere.

DR. MORSE'S MAXIMS:

1. **CLEAN OUT** the birds by the means of Epsom salts, administered in an evening mash, estimating one-third of a teaspoonful to each adult bird.
2. **CLEAN UP** by spreading powdered slaked lime over runs, droppings-boards, and floors of houses.
3. **CLEAN WATER SUPPLY**, to be obtained by adding permanganate of potash, enough to give it a claret-red colour.
4. **CLEAN FOOD**, secured by application of heat, if perchance contamination has occurred.
5. **CLEAN EGGS** by dipping them in 90 per cent. alcohol just prior to incubation.
6. **CLEAN INCUBATORS AND BROODERS** by thorough scrubbing with boiling water and good old-fashioned kitchen soap.
7. **CLEAN BREEDING**—breeding from the youngest stock consistent with the requirements of good breeding.

CLEANLINESS is the *sine qua non* of hygiene and therapy. It is at once the corner-stone of health and the keystone of healing which is the therapeutic arch of disease. Cleanliness is the fundament of sanitary measures which have for their object the prevention of disease and the basal factor of all sanatory expedients which aim at the cure of disease. A well-known principle in morals is that all recovery must begin at the point of departure. If it can be shown that all deviations from health involve the integrity of this fundamental principle cleanliness, it necessarily follows that any attempt at recovery must seek to restore cleanliness. As cleanliness is the first law in the science of preserving health, so is it the primary principle in the healing art. Health and healing alike depend upon it.

This fundamental doctrine of cleanliness as the essential of well-being and the canon of cure may be expressed in three general principles—namely, (1) Clean intake, (2) Clean output, (3) Clean surroundings. The intake includes food and drink and air. The output consists of excrementitious matter from the alimentary tract, the secretion from the kidneys, and the products of the reproductive system. The surroundings comprise the houses, grounds, and air.

Again, these three general principles may be enunciated in detail in the form of seven maxims of poultry hygiene and treatment: (1) Clean out, (2) Clean up, (3) Clean water supply, (4) Clean food, (5) Clean eggs, (6) Clean incubators and brooders, (7) Clean breeding.

Permit me to recall your school days with the grammar lessons. A noun is a name-word and names something; an adjective is a modifying word and qualifies or characterises the thing; a verb denotes action.

In these just enunciated rules the word "clean" as used by me is not an adjective employed merely to characterise the things mentioned; the word "clean" in these rules is a verb, that is to say, it is an action word. And what is its mode? I trust you, ladies and gentlemen of the poultry industry, are in the mood for me to tell you. Its mode is not the indicative, asserting that someone has cleaned, is cleaning, or will clean; it is not the subjunctive, implying doubt or condition as to the

action; it is not the potential, suggesting that the action may or can take place; it is not the optative, bespeaking the poultryman's laudable wish or desire; it is not even the obligative, denoting what ought to be done. I speak it in the IMPERATIVE MODE, signifying action commanded. The goddess Hygeia, standing before your flock of birds to ward off Disease and preserve Health, cries, "I command. Clean out, clean up, clean water supply, clean food, clean eggs, clean incubators and brooders, clean breeding." The spirit of Therapeia, hovering over your besieged flock to drive off Disease and restore Health, cries, "I command. Clean out, clean up, clean water supply, clean food, clean eggs, clean incubators and brooders, clean breeding." And remember, it's present tense, not future; NOW, not after a while. It's second person, person spoken to, not third person, person spoken of, that is to say, the other fellow; not let him clean, but do you clean. And, furthermore, the verb is the singular number. The command is not issued in the plural number to be lost in "what is everybody's business is nobody's business"; the imperative utterances of Hygiene and Therapy are directed to the individual. No matter how large the firm, the order is issued to each individual member. In fact, so firmly do I place my trust in these rules that if I were a member of a poultry firm that had announced its intention of doing business on correct principles, and there should prove to be one member of that firm who refused to hearken to these imperatives, I should immediately sell out or buy out.

WHAT IS CLEANLINESS?

What, it is well now to ask, is meant by cleanliness? Or, rather, it is important to know what the sanitarian means by cleanliness. To know this we must know what he means by "dirt." The philosopher has defined dirt as being "matter out of place." In a general way that is true. Matter that is all right and clean in one place may be all wrong and dirt in another. For instance, that soft boiled egg is all right, clean and tasty in the cup, it is soft boiled egg in the teaspoon on the way to your mouth, it is soft boiled egg in your mouth; but you do not call it soft boiled egg on your shirt bosom or your once immaculate white tie. Now

it is out of place, and as dirt has soiled your linen and made it unclean and ready for the wash. The definition of dirt as matter out of place is not always sufficient. The soil along the road or in your garden is called dirt and nothing invidious is intended by the term, but when it sticks to your freshly polished shoe or is tracked into the careful housekeeper's parlour it has become the dirtiest kind of dirt and to be spoken against.

You see, in the case of the soft boiled egg, cleanliness is one thing to the epicure and another to the well-dresser. Much depends upon your viewpoint. So, cleanliness is one thing to the housekeeper and altogether another matter to the hygienist. It is one thing to the unaided eye, it is quite another thing to the eye with the microscope. The good housekeeper sees with annoyance the specks of dust and is satisfied with their removal; the intelligent surgeon sees the millions of bacteria that use the speck of dust as an airship and wonders how many tetanus bacilli, unseen, fell from that dust on to the raw surface of that cut from which you brushed that dust. The apples on the street vendor's stand glow with apparent cleanliness, but when I tell you that I saw him clean those apples with his pocket-handkerchief your æsthetic nature revolts at the filth and the bacteriologist trembles at the thought of the bacilli of tuberculosis that may be on those skins. The cook washes the lettuce leaves to remove the dust that gathered in the market, picks off a few large specks of dirt that are adherent, and serves it up to you in a tasty salad. But neither she nor you can see with unaided eye the typhoid or other intestinal bacteria derived from the sewage stuff with which that portion of the garden was fertilised.

The value of these principles is in the ease with which they can be applied. Many and various are the medicines by which you may clean out, the disinfectants with which you may clean up, the drugs by which you may clean the water supply. If, however, the poultryman can become expert in the use of just one good and sufficient substance for the accomplishment of each one of these primary principles he is far better off than if his mind was stored with a whole materia medica which he has never or rarely tried. The simple but much used shepherd's sling was better for David than the splendid but untried armour of King Saul. Furthermore the cheapness of the article increases the chances of its being generally on hand, at least speaks for the possibility of its being easily obtained. Notice how simply they can all be carried out:

Clean out by giving Epsom salts.

Clean up by spreading powdered slaked lime.

Clean the water supply by addition of permanganate of potash.

Clean the food by preventing contamination or by applying heat.

Clean the eggs by dipping them in 90 per cent. alcohol.

Clean incubators and brooders by scrubbing with boiling water and good old-fashioned kitchen soap.

Clean breeding by breeding from the youngest stock consistent with the requirements of good breeding.

Let us now go over these rules again, going a little more into detail as to the methods of application.

HOW TO CARRY OUT THESE RULES.

Clean out by giving Epsom salts mixed in an

evening mash, estimating one-third to one-half a teaspoonful to each adult bird, or a teaspoonful to six half-grown chickens or ten to fifteen chicks. After the salts have been thoroughly mixed the mash may be wet down. Let the mash be carefully proportioned to the appetite of the birds and fed on a dry, hard, clean floor, so that the whole may be eaten quickly. Do not waste Epsom salts by putting it in the drinking water. The birds cannot in that way take enough to secure the desired results.

Clean up by spreading powdered slaked lime everywhere, over runs and range (if possible) and floors of houses and on the dropping-boards.

Mind you, I do not say unslaked lime. If you use unslaked lime you will be sure to have a regular epidemic of pneumonia in your flock from the intensely irritating effects of the lime. Powdered slaked lime should be spread everywhere.

Clean water supply. I shall mention three methods, each being easy of practice. Clean the water supply by the addition of permanganate of potash, using enough to turn the water a claret-red; or by adding enough iron sulphate to give it an inky taste (that would be a piece about the size of a marrowfat pea to the quart); or by the addition of one teaspoonful of carbolic acid to the gallon of water.

Clean food. If you have not provided that by preventing all contamination of it, I can tell you you are going to have a time. Heat is the only way by which you can at all purify the food.

Clean eggs by dipping them, just prior to incubation, in 90 per cent. alcohol or wiping them with a 3 per cent. watery solution of some good coal tar disinfectant—that is to say, one ounce (two tablespoonfuls) of the coal tar disinfectant to one quart of water.

Clean incubators and brooders by means of a thorough scrubbing with boiling water and good old-fashioned kitchen soap. If you feel the need of further disinfection with a coal tar preparation apply a 3 per cent. solution of cresol soap, an official preparation known as Liquor Cresolis Compositus, that is compound solution of cresol. The 3 per cent. solution is made by the addition of one ounce (two tablespoonfuls) of compound solution of cresol to one quart of water.

Clean breeding may be accomplished by breeding from the youngest females consistent with good breeding.

THE REASONS WHY.

Let us look at the reasons for these maxims.

1. Clean out with Epsom salts. Why? For the same reason that a chicken uses the dust-bath you give the fowl Epsom salts—namely, to get rid of or to diminish the number of parasites. The dust-bath assists in removing the ectoparasites. The Epsom salts cleans out the endoparasites. These may be large enough to be seen with the unaided eye, as, for instance, the various intestinal worms, or they may be not only minute enough to require high powers of the microscope for detection, but also may be so infinitesimal as to belong to the class of ultra-microscopic germs.

It is customary to regard the presence of intestinal worms as a more or less normal condition and not deserving of any anxiety. Take my word for it, as a pathologist, the intestinal parasites of chickens, be they worms, moulds, bacteria, or protozoa, are of no use whatever to the chicken. On

the other hand, any one of them, no matter how harmless, may produce disease or develop conditions in which certain well-known disease-producing parasites may operate, or may, during their so-called harmless development, evolve poisons which, given certain accidents to the lining membrane of the intestinal tract, may suddenly give rise to a fatal intoxication of the bird. Hence, clean out the intestinal tract by means of Epsom salts, and, by means of Epsom salts keep the intestinal tract cleaned out. The "undesirable citizen" must not be dallied with in the living body any more than in the body politic of state or nation.

What has just been said is not merely with reference to the prevention of disease. Suppose disease of any form has attacked a bird. You now need the maximum of its disease-resisting powers for a successful defence. But suppose the bird is already engaged in battling with intestinal parasites and neutralising their toxins. It is as if a nation engaged in civil war is suddenly called upon to defend itself against a foreign invasion. Hence, when your flock is attacked, or a single bird is affected with disease, even though it be only (?) bumble-foot, clean out with Epsom salts. By this means you will not only stimulate the disease-resisting forces of the chicken but you will also relatively increase those powers by the removal from the intestinal tract of toxins which would otherwise have to be antagonised.

2. Clean up by spreading powdered slaked lime. Why? Because Maxim No. 4 (clean food) is so important. Through parasite-contaminated food and drink are probably developed more cases of disease than through any other method. We have every reason to believe that the causative organisms of the diseases of the respiratory and digestive tracts are passed out of the body of the bird in immense numbers in the droppings. And thus disease is spread; spread abroad over your own place from bird to bird by means of the infective droppings of a sick fowl or chick; spread to your flock from your neighbour's sick poultry by the wind wafting to your farm the dust from his poultry-yard contaminated with the infection-laden droppings of his diseased stock, or tracked from his place to yours by dogs or cats or even your mutual friends, or carried from place to place by such birds as sparrows, crows, &c. And you must remember that it is not alone the sick birds that are thus a source of danger. In poultry hygiene as in human sanitation you must beware of the bacillus-carrier; we'll make that word larger in its meaning and say "microbe-carrier" so as to include moulds and microscopic animal forms, the protozoa, such as coccidia, the cause of white diarrhoea in chicks; yes; we'll go further and make the word still larger—call them "parasite-carriers" and thus include the larger parasites such as worms. These "carriers" are divided into three classes; sick carriers, chronic carriers, and healthy carriers. Against the sick carriers you are naturally forewarned and forearmed. Just as the soldier dreads the ambushed foe, so let the poultryman be wary of the covert attack on his flock by parasitic enemies that stealthily approach the birds under cover of the once-sick-but-now-supposed-cured bird (chronic carrier) and hidden in the intestinal tract of healthy birds that have simply picked up the parasites and are carrying them without being affected by them. Against all such dangers you materially defend

yourself and your flock if you clean up with powdered slaked lime.

3. Clean the water supply, as before directed, by the addition of permanganate of potash, iron sulphate (copperas), or carbolic acid. Why? Because, as stated a few moments ago, water-borne diseases are frequent in the poultry-yard. Clean and disinfect your drinking-fountains (and you must) never so well, if you are permitting, consciously or unwittingly, to run at large one bird sick with any of the contagious diseases of the head parts or with bowel disease, you may count on that water supply being contaminated in less than one hour's time. In the case of a large flock affected with flagellate diarrhoea I have myself found the flagellates in less than one hour's time in the drinking water which had been sterilised and placed in thoroughly disinfected fountains. Do you not see where such a condition as this forces you? Right up against the principle of the individual drinking-cup. Ridiculous, do you say? Not a bit. I did not say "the individual drinking-cup," but "the principle of the individual drinking-cup." Boards of Health are recognising that by means of the common, public drinking-cup foul and terrible diseases are being spread among people. It is just so with your poultry, and while you cannot adopt the individual cup you can incorporate the principle of it in your hygienic methods by adding every few days (daily during the prevalence of disease) one of the antiseptics named. It is true, in the proportions named, these remedies do not disinfect the water, only act as antiseptics—that is, act to hinder the development of bacteria and other microbes. The water itself should be changed frequently. This hindering of microbial growth occurs not only in the fountain but is kept up in the intestinal tract, thus making Maxim No. 3 a splendid adjunct to No. 1.

4. Clean food. This I have said must be accomplished by preventing contamination or, when that occurs, by the application of heat. I once heard a man say, "Oh, chickens love mouldy bread; they will eat all they can get of it, and it never hurts them." That man posed as a scientist, but, unfortunately, he had never learned to reason from cause to effect, and was, therefore, unfitted to deal with health questions. Here you are before me, an intelligent audience, men and women of the American Poultry Association. I wonder, now, how many of you would care to feed mouldy food to your high-priced prize-winners. Not one of you, I am sure. We pathologists have to recognise mycotic enteritis—that means an inflammation of the intestinal tract, manifesting itself by diarrhoea and caused by the presence of some mould. We have to recognise mycotic pneumonia. That means an invasion of the bronchial tubes by the mould known as *Aspergillus fumigatus*, giving rise to the disease known as *Aspergillosis*. This disease is of frequent occurrence in pigeons and pigeon feeders, due to the presence of this mould on the corn which the feeders take into their mouths along with water and force into the mouths of the "squeelers" in similar fashion to that practised by the parent birds. It is hard to estimate the immense value that hopper feeding has been to poultrymen, in that it preserved the food from contamination such as occurs when grain is scattered. Nevertheless grain must be scattered, for the scratching-shed is a necessity. However, look out for mouldy litter.

The removal of mouldy clover chaff has been reported as ending a siege of Aspergillosis in chicks. Keep the chicken feed free from mould. Do not buy mouldy feed. Beware of meat scrap that "smells bad." With it you may expect cases of bacillary diarrhoea or toxic conditions similar to what we know as ptomaine poisoning. If, in spite of your utmost care, as may sometimes happen, mould should creep into your grain feed, treat it as the housewife has for years treated such conditions, apply heat.

5. Clean the eggs. How? By dipping them, just prior to incubation, in 90 per cent. alcohol or wiping them with a 3 per cent. watery solution of a good coal tar disinfectant. For this purpose nothing is better than the official Liquor Cresolis Compositus—that is to say, compound solution of cresol, commonly called cresol soap. A 3 per cent. solution is made by adding one ounce (two tablespoonfuls) of cresol soap to one quart of water. Why should we dip eggs prior to incubation? Because as they come from the hen they are compelled to pass through the cloaca, which gives passage likewise to the droppings. Thus the exterior of the egg-shell is certain to be contaminated with whatever infectious microbes are lurking in the intestinal tract of the hen. If, as is very likely to be the case, the hen is parasitised with coccidia, the shells of her eggs are certain to be contaminated with coccidial cysts which, under the influence of the heat and moisture of the incubator, develop to the stage necessary for the transfer of the disease to the chick. Then when the chicks begin to peck, as peck they will, during the first twenty-four hours some of these cysts will be taken into the alimentary tract, and having reached the duodenum, that portion of the intestine immediately following the gizzard, these cysts will be dissolved by the pancreatic juice, so setting free the coccidial forms that attack the lining membrane of the intestine, and thus white diarrhoea has started in your flock. Do not be afraid to dip the eggs. There are plenty of poultry-breeders who are prepared to vouch for the marvellous results that have followed the cleansing of eggs just prior to incubation.

6. Clean incubators and brooders with boiling water and good old-fashioned kitchen soap. Then set them out in the sun to dry. This ought to be sufficient. However, if the addition of a good disinfectant will make you feel any better, to every quart of water add one ounce (two tablespoonfuls) of cresol soap (compound solution of cresol).

7. Clean breeding. Why? Let me give you a few facts and you will then say with me, Clean up the breeding by breeding with the youngest females consistent with all known principles of good breeding. In searching for the reason for the remarkably early manifestation of mould disease in chicks we have been led to the oviduct of the hen. In this organ several of us have encountered the disease. It has long been recognised that moulds may develop on the inside of the egg. Eggs from hens with diseased oviducts show the presence in the egg-white of the infectious organisms. If present, how easy for them to develop along with the developing embryo so that infected chicks are hatched from these eggs. The older the hen the more used the oviduct; the more used the oviduct the more likely is it to be infected; if infected it is almost certain that the disease germs will be deposited upon the unshelled egg in its passage down the oviduct.

NOTES FROM ABROAD.

Poultry-Raising in Oregon.

Professor James Dryden, who is one of the sanest authorities on poultry questions in America, has written a little pamphlet, published by the Portland Commercial Club, in which, referring to this Pacific State, he says:

Poultry-keeping is a more or less prominent feature on all the farms of Oregon, where a system of mixed husbandry prevails. To the man with a proper knowledge of crop-growing, combined with a practical knowledge of poultry-keeping, there are many sections in Oregon that offer splendid opportunities to make poultry-keeping the leading feature of a system of mixed husbandry involving crop rotations. This is possible under the free range colony system for fowls. A thousand or more hens may be kept in this way on a general farm without interfering with the rotation of crops.

International Poultry Show in Australia.

The *Melbourne Leader* states that a proposal has been made for the holding of an International Live-Stock Exhibition in 1912, and has received warm support equally from breeders and the various Commonwealth and State Governments. Evidently poultry questions are forging ahead in Australia.

White-Laced Red Cornish Game.

New conditions and additional breeders evolve new varieties. One of the latest is that which, under the above name, has been admitted to the American standard of perfection, evolved by Mr. W. H. Card, of Connecticut. We shall see what it is like when the standard appears.

Fattening in Canada.

The French Canadians, who have never given that measure of attention to poultry which might have been expected from their ancestral predispositions, are being urged to take up fattening. They should make the business successful if heredity counts.

The Orange River Colony.

The editor of the *South African Poultry Journal*, in a recent issue, stated that the conclusion of the Boer War found the Orange River Colony practically denuded of fowls, and therefore the history of the poultry industry there only dates from 1902. He adds:

On the whole the Free State appears to be well adapted, both as to soil and climate, for poultry-raising, and partly as a consequence of this and partly because, with the exception of Bloemfontein, there are no great centres of population, it claims a position, unique among the States of the Union, of being not only able to supply its own requirements in table-poultry and eggs, but of being able to export large quantities to that most insatiable of markets, Johannesburg, and hence it can claim that within the short period of seven years it has arrived at a point that it is doing its part towards wiping out of the Customs Returns the item "eggs imported from overseas."

By the way, we congratulate our contemporary on the attainment of its two hundredth number, which contains interesting reviews of the progress made in South Africa.

Demand for Stock in Western Canada.

The *Standard of Empire* correspondent at Edmonton, Alberta, reports :

Owing to the demand for pure-bred fowls, the Provincial Department of Agriculture is bringing in 1,000 birds from Eastern Canada. Speaking of this branch of the mixed farming business, the Hon. Duncan Marshall, Minister of Agriculture, said : " It is a striking evidence of the development of mixed farming in the Province that the poultry branch of the Department requires to import 1,000 chickens from the East this year to fill the orders which have been received at the poultry station for birds. There are now on order at the poultry station requests for 1,500 birds from the farmers of the Province. These orders have come absolutely unsolicited. This year the poultry station raised 500 young birds, which is only a third of the number required by the farmers."

Cost of Rearing and Fattening Chickens.

Jardins et Basses-Cours records an experiment made by one of its correspondents as to the cost of producing a table-chicken. He estimates it as follows :

	French value.		English equivalent.	
	fr.	c.	s.	d.
Egg and hatching	0	50	0	5
Food during rearing period	1	40	1	2
" " fattening "	1	0	0	10
	<hr/>		<hr/>	
	2	90	2	5

The final weight attained was 2kilo. 700gr. (say, 3lb. 12oz.).

Servian Turkeys.

For some years a considerable number of Servian turkeys have found their way to our Christmas markets, and as that country is very favourable indeed for such class of poultry, these have occupied a useful place. But Servia has no direct outlet, and it is stated that, thanks to the quarrel with Austria, not a single bird has been permitted to cross the Danube.

Poultry-Production in Iowa.

The *Western Poultry Journal* states that "the poultry business of Iowa is one of its greatest agricultural resources, and returns to the State not less than \$40,000,000 (£8,000,000) in cold hard dollars." That is a big sum, nearly equal to the production of Great Britain, but Iowa has 56,000 square miles within its borders, as against 88,000 in Britain, with, probably, a higher percentage of cultivated land.

Consumption of Turkeys.

A suggestion has been made that European turkeys may be sent to America, owing to the demand far out-reaching the supply and consequent high prices. The probabilities of this are very remote. Europe could consume far more turkeys than it produces.

A Prime Minister's Cup

The Right Hon. Louis Botha, Prime Minister of United South Africa, has evinced his desire to encourage the poultry industry by offering a silver cup for competition at the annual exhibition of the Pretoria Poultry Club.

New Zealand Leghorns in England.

The remarkable records of White Leghorns in New Zealand have been noted from time to time. We see it announced in one of our Antipodean exchanges that Mr. A. H. Padman has exported a pen to the Worcestershire Poultry Farm. The more of such interchanges the better. It will be of interest to note what are the results.

Death of M. Alphonse Verstraete.

The death is announced of this well-known French exhibitor, who had at one time perhaps the most complete collection of different breeds of poultry upon the Continent of Europe, by which he was enabled to make great displays at some of the International Exhibitions.

Is That So?

The Rev. E. Warren, in the *American Poultry Advocate*, says that "we cannot get anything in this world without paying the price. In heavy egg-production there is always a tendency to smaller eggs and to eggs with white shells." That such tendency is present can hardly be questioned, but selection has done much to overcome it.

Poultry in Ontario.

The annual report of the Bureau for this Province of Canada for 1909 records that there were on hand July 1, 1909, 12,086,580 poultry of all kinds, of the value of \$4,411,386, an increase of 68,833 birds and \$55,323 value over the previous year; 4,177,583 were sold or slaughtered, in value \$1,951,072, which works out at a little under 2s. each.

Egg and Poultry Eaters in the United States.

The figures for the decennial census have been published, giving a grand total of 91,972,266, an increase of 16,000,000 in ten years. Of these 45 per cent. are urban residents. We have here an explanation of the wonderful increase of consumption of poultry products which has marked the same period. At an average of 120 per head per annum, which is probably below the actual fact, this means eleven thousand millions, which at 2 cents each would realise £46,000,000 sterling, or 230 million dollars.

Fowl Ticks and Their Effects.

In the border district of New South Wales breeders of poultry are considerably hampered, as they are prohibited from sending their surplus birds into Victoria, owing to the regulations against the introduction of fowl ticks, which are not feared for their bite but their power to transmit disease germs.

Mr. A. M. Prain and Orpingtons.

The Orpington Club of New South Wales has been entertaining Mr. A. M. Prain, who is out there as a member of the Scottish Commission, but he was not satisfied with the fowls usually seen, having that craving for size of body, lobes, and combs which seems to have taken possession of British fanciers. The Colonials believe in utility, and to that end do not want inflation except in muscles and ovaries.

A POULTRY-FARM FOR PLEASURE.

NEARLY fourteen English miles from Copenhagen, Mr. Gammeltoft Skovgaard has laid out a poultry-farm for pleasure in the beautiful place Rungsted. The building contains different compartments for thirty-five fowls each, and under the sleeping-rooms there is left sufficient room for scratching. The owner is a breeder of Leg-horns in different colours, Aylesbury ducks, and Toulouse geese. Near the poultry-house is a little forest or plantation, where the fowls have their runs. In the large tower is a splendid room for pigeons.

W. A. KOCH.

the illustrations is shown a poultry-house with scratching-shed under and in front of the sleeping room.

In the winter time all the cockerels will be



THE WINTER BROODING-HOUSE AT SNEKKERSTEN.
[Copyright.]

THE FAVEROLLES AT SNEKKERSTEN.

ABREED which has advanced a lot in the course of the last few years in Denmark is Faverolles. One of our large poultry-farms at Borupgaard by Snekkersten, near the well-known place Elsinore, is going in for Faverolles alone.

The hatching on the place is begun in February, and nearly 2,000 chicks are reared annually. The illustration shows the winter brooder-house, where in the cellar there is a splendid room for the incubators. On two floors are to be found brooders, and the hot-water pipe system is used all over.

When the chickens are large enough, the pullets are taken from the cockerels and put in different grass runs planted with fruit trees. In one of

fattened, according to the English system, in fattening cages. Besides Faverolles, the owner, Mr. Hagemann, is going in for bronze-coloured turkeys, Rouen ducks, and Italian geese.

W. A. K.



MR. SKOVGAARD'S POULTRY PLANT.

[Copyright.]

FOREIGN POULTRY STATISTICS.

By "STATISTICIAN."

THE International Agricultural Institute at Rome has recently published live-stock statistics, supplied by various countries, from which the following figures relating to poultry have been extracted:

Country.	Year.	Fowls.	Ducks.	Geese.	Turkeys.	Totals where not divided.
Argentina	1908	*11,405,214 ‡3,808,507	608,768	219,936	678,655	—
Austria ..	1900	23,113,522	518,202	1,771,319	—	—
Bulgaria ..	1905	5,725,080	142,257	355,175	185,740	—
Canada ..	1901	—	—	—	—	17,922,658
Denmark ..	1903	*6,644,797 ‡4,910,535	889,413	187,929	58,245	—
Germany ..	1907	66,904,894	2,819,164	6,901,187	477,800	—
Hungary ..	1895	—	—	—	—	32,756,339
Japan	1908	*11,648,621 ‡7,599,285	*151,033 ‡169,958	—	—	—
Lux'm'burg	1907	365,775	3,877	3,671	422	—
Nicaragua	1908	—	—	—	—	60,928
Norway ..	1907	1,460,359	9,031	9,898	3,151	—
N'th'r'lnds	1903	4,934,942	432,858	34,498	11,321	—
N. Z'al'nd	1906-7	—	—	—	—	3,191,604
Servia	1910	4,028,390	240,263	224,801	247,505	—
Sweden ..	1908	—	—	—	—	3,848,350
U. States§	1900	233,598,085	4,807,358	5,676,863	6,599,367	—

* Adults. † Young Birds. ‡ Incomplete, estimated at 4,100,000.
§ Poultry three months old or more.

These figures show the remarkable extent to which poultry now enter into the live-stock of the various countries of which particulars are given. It is impossible to give corresponding figures for Great Britain, but we are able to do so for Ireland, as the annual returns for 1910 have just been published. We are still awaiting the British census statistics taken in 1908. The Irish and French figures are:

Country.	Year.	Fowls.	Ducks.	Geese.	Turk ys.
Ireland	1910	18,130,315	3,367,578	1,730,380	1,060,742
France	1892	54,103,000	3,684,000	3,520,000	1,968,000

Without going into the area of cultivated land in each of the respective countries, the comparative importance of poultry cannot be shown. That may be attempted when the returns for 1908 are issued and also the 1910 census in the United States of America, though such could not be regarded as more than approximate, for there is apparently no uniformity in collecting the figures.

An interesting point is the proportion of fowls, ducks, geese, and turkeys to the total number of poultry, and I have worked these out in the sub-joined table, where the respective numbers are given, adding Ireland for comparison:

PERCENTAGE OF SPECIES TO TOTAL NUMBER.

Country.	Fowls.	Ducks.	Geese.	Turkeys.
	per cent.	per cent.	per cent.	per cent.
Ireland	74.49	13.83	7.32	4.36
Argentina	90.99	3.64	1.32	4.05
Austria	90.99	2.04	6.97	*
Bulgaria	89.35	2.22	5.54	2.89
Denmark	91.06	7.01	1.48	0.45
Germany	86.78	3.65	8.95	0.62
Japan	98.36	1.64	†	†
Luxemburg	97.86	1.04	0.98	0.12
Norway	98.52	0.61	0.66	0.21
Netherlands	91.09	7.99	0.63	0.29
Servia	84.97	5.07	4.74	5.22
United States	93.23	1.92	2.22	2.63

* In Austria Turkeys are included with Pigeons and "Other Poultry," so that the above proportions are exclusive of Turkeys.

† No returns are made as to Geese and Turkeys for Japan.

The foregoing table reveals some remarkable and unexpected results. Leaving out Austria and Japan, in which the returns are incomplete, we find that in six out of ten countries the percentage of fowls to the total poultry is more than 90, in one case (Norway) 98.52, and that Ireland is the lowest (74.49). The United States figures may, however, be entirely altered when the new census appears.

Ducks are surprisingly low in the majority of cases. Ireland stands easily first, the Netherlands, Denmark, and Servia following in the order given. Considering the large consumption of goose flesh in Germany, it is understandable that that country should be at the head, with Ireland, Bulgaria, and Servia next in succession. I scarcely anticipated that the United States would have 0.3 per cent. more geese than ducks. Evidently there is plenty of room for extension of turkey-breeding, but, although that class of poultry is largely bred in Servia, I did not expect that it would be at the top, but such is the case, with Ireland, Argentina, and Bulgaria respectively following.

The table indicates that of the countries enumerated Ireland has done most for general development of the poultry industry.

REVIEW.

POULTRY AND PROFIT. By William W. Broomhead. Cassell and Co. 1s. net.

IT might almost be supposed, in these days of the publication of innumerable books on poultry-keeping, that every conceivable aspect of the question had been treated of so many times over that nothing fresh could remain to be said on any point of importance, so far as the routine of feeding and rearing utility poultry is concerned. But Mr. William Broomhead has managed to produce a book not only original in method but crammed full of the most valuable practical information. Cast in the form of a dialogue between two men—the one an old poultry-keeper of long standing and experience, the other a raw beginner—the attention of the reader is caught and held from the very beginning, and the pithy advice and practical "tips" of the old man acquire a force and reality that the text-book method often fails to impart. The book is well illustrated by photographs and drawings, several of which show Mr. Broomhead's own methods of solving the problems of coops and houses. The book, while expressly disclaiming any idea of "teaching those who are seeking a fortune from poultry 'how to do it,'" covers the whole ground of profitable poultry-keeping in so far as it concerns the small man, and gives most practical solutions to many of the difficulties that are bound to chequer the career of the tyro until he has acquired a sufficient fund of personal experience to draw upon for his own future guidance.

Goose Feathers.

In the ante-steel pen days geese were kept for the sake of their quill feathers, and plucked regularly, but that is no longer needed—at least, not to the same extent. According to M. Henri Blin, in *L'Acclimatation*, geese are extensively kept in France for the sake of their plumage, and are plucked regularly from the time they are two months old.

NOTES FROM CORRESPONDENTS.

IRISH NOTES.

By MISS MURPHY.

THE Royal Dublin Society's Winter Show was held on December 7 and 8 in the spacious grounds of the Society at Ballsbridge. The poultry entries were far ahead of previous years, especially in the dead poultry classes, and the quality was very good. Some very handsome prices were realised for the dead poultry bearing cards, the Dublin poulterers evidently setting a high value on the red, blue, and yellow labels for their windows. The highest price for chickens went to Mrs. O'Grady, of Coachford, Co. Cork, for a splendidly finished pair of Indian Game-Faverolles; the next highest fell to the lot of the Lady Dunleath, Ballywalter Park, Co. Down, for a pair of Indian Game-Buff Orpingtons shown in the usual perfect manner; while in the class for any other cross Mrs. O'Grady again scored with a pair of Orpington-Faverolles chickens that brought the handsome price of 27s. under the hammer.

In the dead turkey class there were only eight entries, the first prize going to Lord Rothschild. This bird brought 30s. at auction, while Lady Dunleath's second, third, and highly commended exhibits realised 25s., 27s., and 20s. respectively. The geese made a better display than in previous years, and the first and second prizes went to Mrs. Richardson, of Tullamore. These birds made 12s. and 14s. each respectively—one of the few instances where the buyer did not agree with the award of the judge. I have seen unnoticed birds bringing high prices at auction at previous shows, but this year the judging of "the deads" was really above criticism. There is no reason why this side of the show should not be greatly extended, and I was pleased to note that some of the premium station holders under the Department succeeded in getting their birds well placed. Some of the novices, however, spoiled otherwise good birds by tying them badly, and in a few instances the feet could have been washed more thoroughly. These points, however, can only be learned by experience and by watching how the winning birds are prepared.

At the London Dairy Show I was particularly struck with the high proportion of Buff Orpingtons among the winners. At Ballsbridge the same fact was in evidence. Mrs. O'Grady won the class for pure-bred fowls with Buffs; while in the class for a pair of chickens of "any cross" the same exhibitor scored first and second with Orpington-Faverolles. The class for Indian Game-Dorking filled badly, and the first prize pair, shown by Lady Dunleath, brought only 22s. at auction. Now that the Sussex fowls are becoming so popular, they will be likely to be heard of in future exhibitions of the kind. Amongst the live poultry there was a falling-off in Buff Orpingtons, and the quality was poor. This was probably owing to the fact that Mr. J. L. Galway was judging, hence there was no exhibit from his or his brother's yards. The Rocks were good, also the Wyandottes, but Leghorns seem to be declining in popularity as show fowls, though for utility purposes they hold their own. This is specially so with regard to Brown Leghorns, for while thousands are reared all over the country, there was not even one good cockerel in the selling classes.

Turkeys and geese were good in quality and numbers, and I saw many "sold" cards in evidence. Miss S. Murphy won first in the cock and cockerel classes, with nineteen entries in each. Both birds were claimed at catalogue price, and as there were three claimants for the cockerel it went to auction and realised £2 17s. 6d.—a decidedly cheap bird at the money. The selling classes for turkeys filled well, and the birds were quickly claimed.

Mr. James Woods, a well-known exhibitor, won the open pullet class and one of the selling classes, while the 30s. selling class was won by another well-known breeder, Miss O'Brien. Mr. Woods claimed the "Reserve" cockerel in the 30s. selling class, and was offered and refused £1 on his bargain before the day was over.

The following poultry appointments have recently been made: Miss K. Harris, instructor to the Clare County Committee of Agriculture; Miss K. G. Murphy to Fermanagh, and Miss Byrne to Sligo; Miss Ruby O'Brien has gone to the school at Dundrum, Co. Tipperary, in charge of both dairy and poultry branches.

Prices for new-laid eggs are very high this winter, ranging from 2s. 4d. per dozen in Belfast and 2s. in Dublin and Cork, to 1s. 2d. per dozen in the outlying portions of the West Coast.

YORKSHIRE NOTES.

By FRED. W. PARTON.

THE popularity of the Minorca seems to be on the wane in Yorkshire, and, as far as one can gather, the same thing applies to other parts of the country. It is somewhat difficult to say why the breed is not occupying the prominent position it formerly held among the laying varieties. I have heard on all sides by those who still keep to their old favourite that there is no falling-off in the economic qualities of this wonderfully prolific breed. It is to be hoped that this is so, and that the waning popularity of the Minorca is merely caused by a passing fancy for other breeds, and that we may see its return to favour. It has often been said that the Minorca is a breed unsuitable for Yorkshire. With this I most emphatically disagree. There are, of course, districts where one would not for one moment recommend it. This, however, would equally apply to every county, since, however suitable a county may be for keeping poultry, there are to be found cold, exposed, and wind-swept districts. The Minorca is not one of the most robust of fowls; at the same time, it is not by any means the most delicate. It is quite true that it will not give of its best on a clay soil, nor in an exposed situation, but on a medium soil, and with a fair amount of shelter, its economic qualities rank very high. It bears restriction well, and is equally at home on an unlimited range. Thus for both farmer and intensive poultry-keeper it is equally suitable.

This season's scarcity of eggs and the high prices they are selling at has acted as a great spur to many of the local poultry-keepers, who are declaring that another season they will make strenuous efforts to meet the great winter demand, and will lay the foundation, early in the spring, by keeping the right breeds and hatching at the proper time of year. Whether these good resolutions will be carried out or not it is difficult to say. We are rather inclined to think that by the springtime the big prices for eggs this winter will have been forgotten, and they will continue on the old lines.

Before the publication of these notes Christmas will have passed, but at the time of writing it is gratifying to note that huge consignments of geese and turkeys are arriving in the large towns and industrial centres in readiness for the Christmas consumption. Inquiries have shown that a larger proportion than usual of the geese and turkeys arriving at the leading markets are from Yorkshire. Whilst doubtless Norfolk and Suffolk hold premier position for the excellence of their turkeys, yet the county grown specimens, for size and quality, are not to be scorned. There is one direction, however, in which Yorkshire turkeys are inferior to those coming from Norfolk, and that is in the final preparation; they have not that fine finish which is such a marked characteristic of the Norfolk and Suffolk.

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THE BIBLIOGRAPHY OF POULTRY. SUPPLEMENTAL LIST.

SINCE the publication was commenced of the Bibliography of Poultry in the ILLUSTRATED POULTRY RECORD, I have been favoured by communications from several correspondents sending lists from their own libraries. In many cases these were already included, but in others I have thus been able to fill up the gaps and to give fuller details. For the courtesies thus received I beg to make this acknowledgment of cordial thanks. Below is a supplemental list including these, and also books or new editions issued since the series was begun. It will be found that this Bibliography contains the most complete list of poultry books and brochures yet issued, though there are probably many omissions therefrom.

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POULTRY RECIPES.

FAVOURITE FORCEMEATS.

MUSHROOM.—Put into a bowl four ounces of stewed mushrooms, an equal weight of fine breadcrumbs, two ounces of fresh butter, a teaspoonful of grated lemon rind, and a seasoning to taste of salt, pepper, and grated nutmeg; pound to a smooth paste, bind with two well-beaten fresh eggs, and use for turkeys and fowls, either roast, boiled, or braised. If any forcemeat is left over, make it up into quite small balls and fry these until nicely browned, then drain thoroughly and use for garnishing.

CHESTNUT.—Roast and peel two dozen large chestnuts, then stew them until tender in some good white stock; drain well, and when cold pound them until smooth with the yolks of two large fresh eggs and two ounces of slightly melted fresh

large onions until tender, then drain well, and chop them finely; add to them four ounces of breadcrumbs, a seasoning of salt, pepper, and powdered sage, a large apple peeled, cored, and roughly chopped, a tablespoonful of moist sugar, and a teaspoonful of made mustard, mix thoroughly, and use as required.

SAUSAGE MEAT.—Take six ounces each of lean and fat pork, and, after mincing these separately put the meat into the bowl with six ounces of fine well-soaked breadcrumbs, a seasoning to taste of salt, pepper, sage, and lemon juice, or grated lemon rind, then mix thoroughly, bind with beaten eggs, and use in the usual way. If preferred, the sage may be omitted and a little powdered mint, thyme, or mixed herbs can be used instead, according to taste and convenience.

VEAL AND HAM.—Chop half a pound of lean veal rather finely and put it into a mortar with



SOME OF MRS. TREVOR-WILLIAMS' WHITE ORPINGTONS.

[Copyright.]

butter, a seasoning of salt and pepper, a dessertspoonful of grated lemon rind, and an equal quantity of finely-chopped parsley, then when these various items are thoroughly blended the forcemeat is ready for use.

POTATO.—Wash and peel about two pounds of medium-sized potatoes and cut them up into half-inch dice; put these into a stewpan with an ounce of butter, a tablespoonful of minced onion, a dessertspoonful each of chopped parsley and grated lemon rind, then cover closely and stew gently until the potatoes are about half cooked, being careful to shake the pan about almost constantly; add a seasoning to taste of salt, pepper, and powdered sage, mix well, and use for geese or ducks.

SAGE AND ONION.—Peel and boil half a dozen

six ounces of ham, fat and lean nicely mixed, four ounces of fine breadcrumbs which have been soaked in warm milk and squeezed well, a tablespoonful each of chopped parsley and lemon juice, and a seasoning of salt, pepper, and grated nutmeg; bind as already directed, and use. If required for chickens, or for a very small turkey, there will probably be a little of the forcemeat left over, in which case make it up into a flat round cake about an inch thick, bake it, or fry it until just delicately browned, then drain it carefully from the fat, and serve it on a small hot dish paper. Before sending it to table, cut it into small neat pieces, beginning in the centre, and garnish with sprigs of parsley and fancifully-cut slices of fresh lemon.

LIVER AND BACON.—Chop separately a pound of

fresh calf's liver and six ounces of rather fat bacon, then put the meat into a bowl with four ounces of soaked breadcrumbs, a seasoning of salt, pepper, and grated nutmeg, two tablespoonfuls of finely-minced onion, and two or three well-beaten fresh eggs, then mix well, and the forcemeat is ready for use.

SAVOURY PUDDING.—This forms a most welcome and appetising accompaniment to either roast goose or roast ducks. To make it, soak a pound of stale bread in as much boiling milk as it will absorb, then when quite soft beat it with a wooden spoon until perfectly smooth; add six ounces of finely-shredded beef suet, six medium-sized onions boiled and chopped small, two tablespoonfuls of mixed powdered herbs, a liberal seasoning of salt and pepper, and three or four well-beaten fresh eggs, and stir the mixture briskly until the various ingredients are thoroughly blended. When ready, spread the preparation out in a well-greased baking-tin in a layer about an inch thick, and bake in a moderately hot oven for about an hour. Serve it very hot, cut up into neat pieces a convenient size for serving.

BROWN GRAVY.—For a very good gravy put the giblets and all odd trimmings into a stewpan with a large onion cut into pieces, a bunch of savoury herbs, a seasoning of salt and pepper, and a quart of cold water; cover the pan closely and stew the contents gently for about an hour, then strain the liquor off into another stewpan; add a thickening to taste of flour, or ground rice, mixed smoothly with a little cold water or stock, a small quantity of browning if necessary to improve the colour, a glass of port or good claret if approved of, and a further seasoning of salt and pepper if required. Bring carefully to the boil, and serve in a very hot tureen.

CHIMNEYS FOR COOKERS.

I NOTICED the other month that a poultry-keeper had been treating himself to a cooker, and that he had gone in for a noble height of chimney of sheet iron. Unfortunately he had forgotten the effects of rain and condensation. The next time I passed that way the chimney was red rust. Between rain and condensation piping is destroyed very quickly. I have been able to run my finger through a piece of chimney pipe which had had not been *in situ* a year. It proved to be only 25 gauge. The best thing is to use a heavier gauge, say, 20 or 18. The higher the gauge, the dearer. If the pipe be galvanised instead of plain it will be more costly, but it will last a great deal longer. But why should the poultry-keeper use iron pipe at all? Drain pipes are easily fixed if the height is not great, and they won't rust. They are also of varying diameters. Six inches is a useful size.

In fixing chimneys to a stove it is necessary, by the way, to be sure not only that you have enough diameter, but that if there is a bend—in passing through a wall—it is a sloping bend. It will make all the difference. Smoke in a pipe is like water in a pipe. The easier its route the less friction there is, and the better it draws.

H. C.

JUDGES AND JUDGING.

To the Editor of the ILLUSTRATED POULTRY RECORD.

SIR,—Mr. W. H. G. Ewart's article on the above subject—which appeared at page 145 in last month's RECORD—is doubtless intended to demonstrate once more how great is the necessity for the carrying out of a pet theme of his—the licensing of judges. Perhaps I am wrong; nevertheless, the reading of the article has given me that impression. And in his anxiety to put his case in the best light I fancy he has, in places, overstepped the mark.

"It has ever been clear to me that to judge a well-contested class of fowls with unerring accuracy is a physical impossibility." To Mr. Ewart, yes, on his own showing; to others, not so. Any man who understands his work can do it. Mr. Ewart also says, "It is impossible to think that the best men undertake this most onerous work" of judging, and he leads one to infer that the best of those judges now officiating are "honest, capable poultrymen." It is as well that Mr. Ewart remarks, later on, that his connection with the Poultry Fancy has not been a long one; it enables the reader to place those opinions at their true worth.

To Mr. Ewart a poultry judge is frequently a man of no particular education, whose sole object, it would appear, is not to give his honest opinion of the birds he has to judge, but to "enter light-heartedly on improper contracts, each of which may be worth to him a five-pound note." In fact, in Mr. Ewart's opinion, a poultry judge would be more than human if he did not in some instances succumb to temptation—which, put plainly, means that for the consideration of a trifle a judge would throw his reputation to the winds to oblige a friend! What utter nonsense. Has Mr. Ewart, in his short sojourn in the Poultry Fancy, met none other than dishonest and incompetent all-round poultry judges?

My long experience in the Fancy has shown me that the all-round poultry judge is as honest and as competent as anyone who does not aim at being adorned with wings. I have never yet met the judge who can please every exhibitor—the pity is that the system of awarding prizes does not allow of a first being given to each bird entered. Then, and only then, will some people cease mud-throwing. There are few judges of my acquaintance who do not please themselves. That is the judge's first, nay, only, duty; he can then give reasons for his decisions. To write of poultry judges, at least all-round poultry judges, as an utter bad lot will not advance Mr. Ewart's little scheme concerning the licensing of judges.—Yours, &c.,

WILLIAM W. BROOMHEAD.

Bacteria in Eggs.

The *New York American* reports that after trailing a shipment of canned eggs from the plant of the National Poultry and Egg Company, in Atchison, Kansas, to Brooklyn, 720 cans were seized, containing about ten tons of liquid eggs. Our contemporary very graphically, and in the most vivid Americanese, says: "Samples showed 2,300,000 bacteria to each grain of the eggs. If you want to know how many trouble bugs there are in the whole ten tons, you are at liberty to figure it out for yourselves."

MARKETS AND MARKETING.

Week Ending November 26.

The low price of game affected the poultry trade, and while supplies were fairly restricted prices ranged somewhat low. In one or two cases, however, supplies were reported to be plentiful, but since the demand was slack this did not tend to raise values.

Eggs continued to be extremely scarce, and nowhere could new-laid be obtained for less than twopence each, while even cooking eggs were being retailed at the rate of ten for a shilling.

There was very little demand for either geese or turkeys, though supplies were fairly plentiful.

Week Ending December 3.

The market was again very quiet, although supplies were abundant. There was practically no

to the fact that the public seemed afraid of them on account of the scare regarding the plague. There is no reason for fear on this score, however, since the cases that have occurred are ridiculously few.

Week Ending December 10.

The trade in poultry was dull, supplies being very plentiful but purchasers few. The General Election was blamed, as a matter of course, but in our opinion this has really very little to do with the matter. The mild, damp weather was probably one cause, while another was the plentiful supply of grouse. Turkeys were abundant, but trade was slack.

Eggs continued to be scarce and dear, and there seemed no immediate prospect of their becoming more plentiful. At Carlisle the wholesale price



HOW SWEDISH EGGS ARRIVE IN THIS COUNTRY.

[Copyright.]

change in values to the previous week, save that turkeys were very plentiful with a moderately good demand. The market revived somewhat so far as chickens were concerned, some very fine specimens being on view.

The egg trade continued to be in a quiet state, and the supply of new-laid was again absurdly small. In many shops as much as 2s. 6d. per dozen was being asked and obtained for genuinely fresh eggs.

The trade in hares was almost non-existent, owing

was quoted at 2s. 3d. per dozen, a really astonishingly high figure.

Week Ending December 17.

Owing to the speedy approach of Christmas the market was rather dull, most producers preferring to hold back their supplies for another fortnight, when the demand is greater. Pheasants were exceptionally plentiful and cheap.

Eggs were as scarce as ever, and prices ranged high. The wholesale price at Shrewsbury reached 2s. 4d. per dozen.

TABLE OF PRICES REALISED FOR HOME, COLONIAL, AND FOREIGN POULTRY, GAME, AND EGGS FOR THE FOUR WEEKS ENDING DECEMBER 17, 1910.

ENGLISH POULTRY—LONDON MARKETS.

Description.	PRICES REALISED DURING THE MONTH.			
	1st Week.	2nd Week.	3rd Week.	4th Week.
Surrey Chickens	2/9 to 4/6	2/9 to 4/6	2/9 to 4/6	2/9 to 4/6
Sussex "	2/9 to 4/6	2/9 to 4/6	2/9 to 4/6	2/9 to 4/6
Yorkshire "	2/0 to 3/6	2/0 to 3/3	2/3 to 3/6	2/3 to 3/6
Boston "	2/0 to 3/6	2/0 to 3/3	2/3 to 3/6	2/3 to 3/6
Essex "	2/0 to 4/0	2/0 to 4/0	2/3 to 3/6	2/3 to 3/6
Capons	5/0 to 7/6	4/6 to 6/6	5/0 to 7/0	5/0 to 7/0
Irish Chickens	1/9 to 2/6	1/6 to 2/6	1/6 to 2/6	2/0 to 2/9
Live Hens.....	1/6 to 2/4	1/6 to 2/3	1/6 to 2/6	2/0 to 2/9
Aylesbury Ducklings..	—	—	—	—
Ducks	2/6 to 3/6	2/6 to 3/6	2/6 to 3/6	2/9 to 4/0
Geese.....	5/0 to 7/6	4/6 to 6/6	5/0 to 6/6	5/0 to 7/6
Turkeys, per lb.	0/9 to 1/0	0/8 to 1/0	0/9 to 1/0	0/9 to 1/3

ENGLISH GAME—LONDON MARKETS.

Description.	PRICES REALISED DURING THE MONTH.			
	1st Week.	2nd Week.	3rd Week.	4th Week.
Grouse	2/0 to 2/3	2/0 to 2/6	2/0 to 2/3	2/0 to 2/6
Partridges.....	2/6 to 2/9	2/0 to 2/9	2/0 to 2/6	2/0 to 2/6
Pheasants	1/9 to 2/3	1/9 to 2/3	1/6 to 2/3	1/9 to 2/3
Black Game	2/0 to 2/6	2/0 to 2/6	1/6 to 2/3	1/6 to 2/3
Hares	1/9 to 3/0	1/9 to 3/3	1/6 to 3/0	1/9 to 3/3
Rabbits, Tame	1/0 to 2/6	1/0 to 2/6	1/0 to 2/6	1/0 to 2/6
" Wild	0/6 to 1/0	0/6 to 1/1	0/6 to 1/0	0/6 to 1/0
Pigeons, Tame	—	—	—	—
" Wild	1/6 to 1/9	1/9 to 2/0	1/6 to 1/9	1/9 to 2/0
Woodcock	2/0 to 2/6	1/9 to 2/3	1/6 to 2/6	2/0 to 2/6
Snipe	0/6 to 1/3	0/6 to 1/3	0/6 to 1/0	0/6 to 1/3
Plover	0/10 to 1/2	0/10 to 1/0	0/10 to 1/0	0/10 to 1/0

ENGLISH EGGS.

MARKETS.	PRICES REALISED DURING THE MONTH.			
	Per 120.	Per 120.	Per 120.	Per 120.
LONDON	17/6 to 20/0	17/6 to 20/0	17/6 to 19/0	17/6 to 19/0
Provinces.	Eggs per 1/-	Eggs per 1/-	Eggs per 1/-	Eggs per 1/-
MANCHESTER ...	5	5	5 to 6	5 to 6
BRISTOL	1/9 per doz.	2/0 per doz.	2/0 per doz.	2/0 per doz.

FOREIGN POULTRY—LONDON MARKETS.

COUNTRIES OF ORIGIN.	PRICES REALISED DURING THE MONTH.			
	Chickens. Each.	Ducks. Each.	Ducklings. Each.	Geese. Per lb.
Russia	1/6 to 2/6	—	—	0/5½ to 0/6
Belgium	—	—	—	—
France	—	—	—	—
United States of America	—	—	—	—
Hungary	—	—	—	0/7 to 0/8
Canada	—	—	—	—
Italy	—	—	—	0/8 to 0/9

IMPORTS OF POULTRY AND GAME. MONTH ENDING NOVEMBER 30, 1910.

FOREIGN GAME. LONDON MARKETS.	Price Each During Month.	COUNTRIES OF ORIGIN.		DECLARED VALUES.
		Game.	Poultry.	
Capercailzie	—	—	—	—
Black Game.....	1/2 to 1/4	—	—	—
Parmigan	0/9 to 1/0	—	—	—
Partridges.....	—	—	—	—
Quail	—	—	—	—
Bordeaux Pigeons	0/9 to 1/4	—	—	—
Hares	1/0 to 1/6	—	—	—
Rabbits	0/6 to 0/8	—	—	—
Snipe	0/6 to 1/3	—	—	—
Totals	—	£10,352	£40,853	—

IRISH EGGS.

DESCRIPTION.	1st Week.		2nd Week.		3rd Week.		4th Week.	
	Per 120.	Per 120.	Per 120.	Per 120.	Per 120.	Per 120.	Per 120.	Per 120.
Irish Eggs	16/0 to 19/0	16/0 to 19/0	16/0 to 18/0	16/0 to 18/0	16/0 to 18/0	16/0 to 18/0	16/0 to 18/0	16/0 to 18/0

FOREIGN EGGS.

DESCRIPTION.	1st Week.		2nd Week.		3rd Week.		4th Week.	
	Per 120.	Per 120.	Per 120.	Per 120.	Per 120.	Per 120.	Per 120.	Per 120.
French ...	12/0 to 22/0	12/0 to 22/0	12/0 to 22/0	12/0 to 22/0	12/0 to 22/0	12/0 to 22/0	12/0 to 22/0	12/0 to 22/0
Danish ...	11/0 to 18/0	11/0 to 18/0	11/0 to 18/0	11/0 to 18/0	11/0 to 18/0	11/0 to 18/0	11/0 to 18/0	11/0 to 18/0
Italian ...	11/0 to 14/0	11/0 to 14/0	11/0 to 14/0	11/0 to 14/0	11/0 to 14/0	11/0 to 14/0	11/0 to 14/0	11/0 to 14/0
Hungarian ...	8/3 to 11/6	8/3 to 11/6	8/3 to 11/6	8/3 to 11/6	8/3 to 11/6	8/3 to 11/6	8/3 to 11/6	8/3 to 11/6
Russian ...	7/9 to 10/6	7/9 to 10/6	7/9 to 10/6	7/9 to 10/6	7/9 to 10/6	7/9 to 10/6	7/9 to 10/6	7/9 to 10/6
Syrian ...	8/6 to 11/9	8/6 to 11/9	8/6 to 11/9	8/6 to 11/9	8/6 to 11/9	8/6 to 11/9	8/6 to 11/9	8/6 to 11/9
Dutch.....	14/6 to 22/6	14/6 to 22/6	14/6 to 22/6	14/6 to 22/6	14/6 to 22/6	14/6 to 22/6	14/6 to 22/6	14/6 to 22/6

IMPORTS OF EGGS. MONTH ENDING NOV. 30, 1910.

COUNTRIES OF ORIGIN.	Quantities in Gt. Hund.	Declared Values.
Russia	1,224,234	£518,078
Denmark	377,115	£220,097
Germany	53,013	£22,590
Italy	47,881	£25,873
France	48,818	£26,531
Canada	864	£507
Austria-Hungary	115,246	£52,300
Other Countries	167,271	£79,682
Totals.....	2,034,412	£946,918

ANSWERS TO CORRESPONDENTS.

The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered if possible in the issue following their receipt. The desire is to help those who are in any difficulty regarding the management of their poultry, and accordingly no charge for answering such Queries is made.

Feeding for Exhibition.

"I have a Black Leghorn cock I intend showing in November. Would you advise me to keep it in a cote 4ft. square? It is now kept on a clay run. It has not yet commenced to moult. Would you advise me to force the moult, and, if so, what is the best food for the purpose? What food is generally used for feeding birds intended for show? What is the best thing to do to get all wrinkles and marks out of the earlobes, and to make the comb a bright red—the comb has gone a little bit blue?"—H. L. (Oldham).

A 4ft. square "cote," provided it is not less than 4ft. high, will answer well enough in which to moult a Black Leghorn cock; but it is not advisable to keep the bird continually confined to such a small place until it is required for the November show. If it is used as a moulting-house (and many similar contrivances are in vogue in fanciers' yards) the front should be of light sacking stretched on a wooden frame to answer as a door; and there should be a 6in. space at the top of each side to keep the interior well aired. But as soon as the bird is through his moult he should be permitted to run in the open in a shaded place. A clay run will answer the purpose, provided it stands on high ground and is well drained. Confinement to the "cote," combined with rather short rations, will cause the fowl to commence moulting; and an occasional feed of hemp seed at this period will prove beneficial, although it must be discontinued as soon as the moult commences. Nothing can be done to hasten the moult. Keep the bird warm and well fed, but with cooling food, since a stimulating diet causes fever, and prevents the proper formation of the features. There is really no special food for giving to fowls which are intended for exhibition. Spratt's Poultry Meal as the soft food is good at all times, and there is not a better for poultry. Half a handful allowed to soak thoroughly in boiling water for about an hour, and then mixed with a small quantity of boiled and minced cabbage, and dried off with middlings, will be found ample for the bird's breakfast, and about a handful of wheat or short and heavy oats will do for "tea." In confinement fresh green food should be freely allowed, and there is no kind to excel lettuce which has gone to seed and is stalky. The best thing to do to get wrinkles out of white earlobes is to bathe them frequently with tepid water or milk, to work them well between the finger and thumb, and then dust them lightly with zinc powder or starch powder; but no trace of the powder must be allowed to remain on the lobes when the bird is exhibited. If the Leghorn's comb has "gone a little bit blue" the bird is probably suffering from liver complaint and a dose of Epsom salts combined with a good supply of fresh dandelion leaves (either given whole or minced and mixed with soft food) will probably be all that is needed to set matters right.

Feather-Eating.

"Being a subscriber to the POULTRY RECORD, which I may here mention I consider excellent value for money, I herewith ask your advice regarding my chickens, which are in the habit of eating the feathers off their

backs. I feed them on a mash meal in the mornings, and give them mixed grain generally in the afternoons, and also some ground bones two or three times a week, but I cannot understand what entices them to eat their feathers in the way they are now doing, and I shall feel much obliged if you can let me know through your Answers to Correspondents how I can prevent the same."

—V. V. (Hammersmith).

The cause of your birds eating their feathers is probably idleness, and some occupation should be provided for them. The grain should be buried in chaff or straw, as this keeps the birds busily occupied. Feed sparingly, as feather-eating is often due to the birds being in too fat a condition. A half mangel or turnip suspended from the roof of the run to within about a foot of the ground also affords the fowls amusement and exercise. Broken oyster shell should be liberally supplied, also some flesh food, such as worms and grubs. The habit is quickly acquired by other fowls, so if the culprit can be discovered it should be placed by itself. The bare places should be washed, then rubbed with vaseline or olive oil mixed with a tenth part of carbolic acid.

Rearing Ducklings.

"I am expecting some ducklings out very shortly. Would you kindly tell me what I should feed them on, and when they should be allowed into the water? I have a good pond, about half an acre big. Any help you can give me will be much appreciated."—H. A. S. (Cork).

You do not state whether it is intended to rear the ducklings for the table or for stock purposes. If the former, the food supplied from the time of hatching until the ducklings reach the age of five weeks should be finely-ground oats and milk. If difficulty be experienced in obtaining ground oats, barley-meal and middlings will be found an excellent substitute. It will materially assist their growth if a proportion of meat be supplied—say, $\frac{1}{2}$ oz. per bird per day. It must be fresh and well cooked. Mix all together, meat, liquor in which it was cooked, with barley-meal and sharps. The final three or four weeks boiled rice and skim milk may be used. As much green food should be given as the birds will eat. From the time of hatching till the ducklings are three weeks old four feeds a day should be given; after this, and until they reach killing age, three feeds a day will be sufficient. Water for drinking should only be supplied in small quantities. The trough in which the water is given should be filled up nearly to the top with coarse gravel. Ducklings intended for early killing should not be allowed to swim, as this greatly retards fattening. If the ducklings are to be reared to breeding age a different method of feeding must be adopted. Grain, preferably oats, should be their staple food from as early a time as possible, and access to swimming water is absolutely necessary for the strength and stamina of the future ducks.

Guinea Chicks.

"I shall be obliged to you if you will kindly let me know in the ILLUSTRATED POULTRY RECORD some particulars concerning Guinea Fowls. I am anxious to keep these interesting birds, but I know very little about them. I have two acres of land, but I am under the impression that they must be given a large amount of room. Is this so? What are the stock birds fed on, and are they housed in the ordinary way?"—M. S. (Stafford).

Guinea Fowls are not suitable birds for confined runs, as they are naturally of a roving disposition. At the same time, upon two acres of land a moderately sized flock could be maintained. Guinea Fowls may be reared at a good profit, for, if kept on a farm, or if they have the run of meadow and, they do not require much feeding, for, being such wonderful foragers, they obtain much of their own food. The demand for these birds for table purposes is limited, and the season is a very short one. The hens produce between

60 and 70 eggs up to about August; the eggs are small, but very rich in colour and flavour and are in request in the West-End of London. Stock birds require nothing special in the way of feeding, and may be fed on exactly the same foods as other poultry. They prefer roosting in trees, and laying away; in fact, they incline to all wild propensities, but if the young are hatched and brooded by hens they soon become domesticated, and can easily be broken off their wild habits.

Cutting Hens' Wings.

"My White Leghorns are constantly flying out of their run, although there is fencing nearly six feet high. I have been told that if I cut their wings this will prevent them flying over, but I am not sure how to do it, or if there are any special feathers that should be cut. Your help will be greatly appreciated."—W. B. S. L. (Eversholt).

An assistant should firmly hold the bird. The operator must then spread out the wing, and with a pair of ordinary scissors cut the first eight large feathers as close to the pinion as possible without actually drawing blood. One wing only need be so treated. If this simple operation be neatly performed there is little or no disfigurement, and it will effectually prevent your birds flying over the fence.

Short Replies.

P. S. M. G. (Northallerton).—Yes.

F. W. S. (Newark).—Consult our advertisement pages.

R. W. (Great Hadham).—See issue of I. P. R. dated May, 1909.

B. C. D. (Perth).—The delay was due to your writing "private" on the envelope.

ENQUIRER (Ballinglana).—We cannot understand your question. Please write more fully.

W. N. (Chippenham).—You have been misinformed, for there is no breed of that name.

T. E. M. (Maldon).—1. Peat moss-litter. 2. Straw rather than chaff. 3. Broken oyster-shell.

W. W. L. (Hommes, France).—We are making the necessary inquiries, and will write you in the course of a fortnight.

DEATH OF THREE FANCIERS.

DEATH has been busy of late in the ranks of fanciers, and it is my painful duty to record names of three more who have died since my notes were written for last month's RECORD. The first is that of Mr. John Crossland, of Wakefield, one of the oldest, and, at one time, most notable fanciers in Great Britain. In his time he had exhibited every known breed of poultry, pigeons, and dogs, and had judged them at many shows throughout the kingdom, and especially round about Derbyshire and Yorkshire. He had a wide reputation as a judge, and as one who did not care in the least what people thought of his awards or what they said of his judgment; but he was known to be as straight as a gun-barrel in his decisions and a thorough master of his subjects. Of powerful physique, he could, and did on occasions, put the fear of death into the hearts of dishonest exhibitors, yet he was of kindly disposition and generous nature, and a thorough sportsman. The late Mr. Crossland was a man of considerable wealth, and one who had had the benefit of a splendid education.

George Reyner was of a younger generation, but he hailed from the county of broad acres; and his death, which occurred towards the end of last November, is a great loss to the variety Bantam Fancy. His was a familiar figure at the classic

shows, and, in fact, wherever there was a good classification for variety Bantams one was almost sure to meet him. I last saw the late Mr. Reyner in company with Mr. David Purdon and Mr. E. J. W. Buckpit, the three inseparables of the variety Bantam Fancy, returning from one of the Palace Shows, and on the journey I learnt more of the "wee yuns" than many a man can learn in a lifetime. What I admired about George Reyner was his true fancier spirit. He bred and showed his Bantams from the pure love of the thing, and not because of the money there is supposed to be in it. He gave time and money—and that lavishly—to the furtherance of the breeds in which he was interested; and he was ever ready to assist the novice, and has often set a struggling fancier on his legs by giving him a breeding-pen of one or other of the varieties he reared. He was a most successful exhibitor; and as a judge of variety Bantams he had not a superior. His first love was Frizzles, and with this breed he won many prizes at such shows as the Dairy, the Palace, Birmingham, and Liverpool. He also went in strongly—quality not so much as quantity—for other breeds of Bantams, and he was continually winning prizes with Light Brahmas, Scotch Greys, White Rosecombs, and Japanese.

The third death I have to record is that of Mr. Frank Sissons, of Worksop. Mr. Sissons had not been a fancier for many years, but during the few he was in the Fancy he had made a name in Buff Orpington circles. Not only was he a successful exhibitor of that variety in this country, but when in competition abroad his birds generally gave a good account of themselves. Of late years, too, he went in for White Orpingtons, and with both varieties he had a considerable export trade. His yards at Worksop, Notts, were splendidly arranged, and they were fitted with the most up-to-date artificial appliances, chiefly designed by their late owner. With Mr. Frank Sissons poultry-breeding was purely a hobby, since pressure of business was too great to allow of its being otherwise; but what time he had to spare was put in on the poultry-farm.

W. W. B.

Mr. W. Tamlin's Exports for November.

One 60 incubator and one 60 foster-mother, to Mr. E. Lima, Lisbon, per ss. Malaga; ten 60 incubators, ten 100 incubators, six 200 incubators, ten 100 foster-mothers, to Fletcher Bradley, Canada, per ss. Montreal; six 30, six 60, and six 100 incubators, per order of J. Stephens, Limited, to Algoa Bay, per Garth Castle; one 60 incubator, to Miss De Saram, Ceylon, per ss. Gulistan; one 100 incubator, to Penang, order of Hendry and Co.; thirty 100 incubators, ten 200 incubators, twenty 100 foster-mothers, to Mons. Andre Masson, France; one 100 and one 60 incubator, to Bangkok, per order of Badman and Co.; one 60 incubator, to Sir W. Egerton, Southern Nigeria; one 100 incubator, to P. Robinson, New Zealand, per ss. Turakina; one 100 incubator and one 60 foster-mother, to T. Bonner, Ceylon, per ss. Canara; one 60 incubator, to A. H. Powell, Algoa Bay, per Alnwick Castle; one 100 incubator and one 100 foster-mother, to Miss P. Nightingale, Fremantle, per ss. Janeta; one 200 incubator, and one 100 foster-mother, to A. T. Collier, Halifax, per ss. Kanawha.

FOWL CHOLERA AND SOME OTHER DISEASES OF FOWLS.

By A. E. METTAM, B.SC., M.R.C.V.S.,

Principal of the Royal Veterinary College, Dublin.

AMONG the various diseases investigated in the pathological and bacteriological laboratories of the Royal Veterinary College, Dublin, during the past year were diseases of fowls, including turkeys, geese, and pheasants.

FOWL CHOLERA.

A number of fowls—Guinea-fowl and others—were sent in from time to time to the College and found to have died from fowl or chicken cholera. The infection is associated with diarrhœa, hence the term cholera, and not infrequently a number of fowls belonging to the same run die rapidly and within a few days. Among the more prominent symptoms of attack the following may be noted. The infected animals isolate themselves and stand or sit with ruffled feathers, and the comb and wattles are often deeply coloured. The discharge from the intestines is of a thin liquid character, sometimes streaked with blood, and is continually being passed. This discharge is infective and contaminates the poultry-run, and this fact accounts for the spread of the disease. After a longer or shorter period the bird dies, and an examination of the organs of the body reveals the following conditions. There may be little change from the normal condition, or at most an enlargement of the spleen, a small berry-like gland attached to the gizzard. In health this gland is about the size of a currant—but in fowl cholera it may be as large as a hazel nut—dark red in colour, and soft. In other cases besides the increase in size in the spleen other organs are affected—the liver is enlarged, brownish or yellowish in colour, and may contain minute greyish specks, the result of death of minute portions of the liver. The lungs are congested, and there may be fluid in the heart sac, which rapidly becomes solid and jelly-like on exposure to the air. There is little change to be found in the kidneys, ovary, &c., but the intestine may be congested and the contents fluid, soup-like, frothy, or streaked with blood. The lining of the intestine is reddened, may be dark red in colour, and the changes in the intestine explain the diarrhœa, or cholera, the name given to the disease.

THE CAUSE OF THE DISEASE.

The cause of the disease is a minute germ or micro-organism, and it may be found, if the animal has not been dead too long, in the various organs—as the spleen—and in the blood. By proper methods it can be obtained in pure culture and grown upon artificial media and studied. A pure culture inoculated into a fowl will kill it in four, five, or six days with all the signs of fowl cholera as observed in the fowl dying from the disease naturally acquired.

If the pure culture be inoculated into a rabbit, or even fed to a rabbit—as by mixing with its food of oats and bran—the rabbit dies from fowl cholera and the micro-organism can be obtained again from the organs of the rabbit. An experiment may explain. A fowl was sent in suspected of having died from fowl cholera, and an examination

of the organisms proved this to be the case, the micro-organism being found in the spleen. The spleen and liver were taken and pounded in a mortar, making a pasty mess, and this was mixed with oats and bran and given to two rabbits. Six days later one of the rabbits was found dead, and from its organs the germ was recovered in pure culture. The other rabbit was not infected and never showed any illness, though there is no reason to suppose that the one that died took all of the infected food. It is not easy to explain why certain animals exposed to infection are capable of resisting and escaping infection, though everyone is familiar with this fact in disease both of man and animals.

PREVENTIVE MEASURES.

It is not known if the germ producing fowl cholera is capable of living for any length of time outside the body, but it is very probable that such is the case. In all outbreaks, it being remembered that the material from the intestine is infective, diseased fowls should be isolated as soon as they are observed to be ill, and any dead fowl should be burned. Healthy fowls should be removed from the contaminated run, and no fowl allowed back upon it until it has been disinfected, and any infection remaining killed or destroyed. Probably the best way to treat such a run would be to give it a good dressing of lime or lime and salt, to dig it over, and let it lie untouched until the following year. It would be courting disaster to bring back upon the infected run a new lot of fowls before the infection had been killed out or rendered harmless.

OTHER FOWL DISEASES.

A somewhat similar disease to that of fowl cholera has recently been investigated. A number of fowls had died from no apparent cause, and two of their number were sent into the laboratory. They were in excellent condition, quite heavy and fat. A post-mortem examination showed nothing abnormal, save that the spleen was enlarged. A bacteriological examination discovered a small micro-organism differing from that of fowl cholera in that it was motile and apparently related to certain organisms found in the intestine—of the paracolon or paratyphoid variety. A closely related organism has been observed in the body of a calf.

FOWL PARASITES.

From time to time fowls arrive in the laboratory infected with mites. These minute parasites are known as the *Cytodites nudus*. They are present in the air sacs and in the body cavity of the birds. They may be present in large numbers, and are readily observed when one knows what to look for. They are greyish in colour, about the size of a strawberry "seed," and frequently a number are gathered together, a dozen or more. If lifted up on a pin-point and put upon a glass slide or piece of paper they may be recognised readily by means of a lens. The life history of these parasites is not known nor how they reach the body cavity, and it is maintained by some that they frequently are the cause of serious epidemics among fowls. In many cases examined in the College there were no changes in the organs to account for death.

In Denmark Mr. Olaf Bang has recognised in fowls a peculiar disease, which he has named an infectious leukæmia, because a prominent feature of the infection is a grave change in the blood and

in certain organs of the body. The disease is further remarkable in that it may be given to a healthy bird by inoculating blood or spleen or liver from a diseased bird, and that the cause is a living organism that belongs to the class known as "ultra-microscopic"; the organisms are so small they cannot be seen with the highest powers of the microscope, and can pass through the pores of an earthenware filter. In affected birds the spleen and liver are both greatly increased in size, and the proportion of white blood-cells in the blood is raised. The birds, after being infected some weeks, die—usually emaciated. I have had an opportunity of examining a bird which apparently suffered from this disease. The liver was greatly enlarged, it was heavier than any recorded by Mr. Bang, and there was an enormous increase in white blood corpuscles. Sections of the liver revealed large areas composed almost entirely of white blood-cells. Inoculations made

found. The bowel was quite hard and distended with a firm mortar-like material, the result of an inflammation of the bowel. The cause could not be ascertained, but it is interesting to note that the parasites, the cause of "blackhead" in turkey chicks in America, and coccidia were not discovered. In other young turkeys the cæca were found packed with food, and everything pointed to the young birds not being suitably fed. This opinion was given and apparently was correct, as the poultry instructor afterwards wrote and agreed with the opinion and advised change of method in feeding. No other birds were lost.

TUBERCULOSIS IN FOWLS.

A considerable number of birds of all kinds have been received suffering from tuberculosis, and as the disease is very common a few particulars concerning the disease in birds may be useful. The



A POPULAR FORM OF AMERICAN LAYING-HOUSE.

[Copyright.]

Each Compartment Measures 16ft. square, and Accommodates About Two Dozen Adults.

with spleen and liver as well as with blood and bone marrow were negative, though I hope I may have more material sent to me to investigate further this very interesting and important condition. The birds show during life great loss of condition, and when caught are found to be "light" and mere skeletons. It may be thought that they are tuberculous, but on examining the viscera signs of tuberculosis are wholly wanting. The chief and most striking change is the enlarged liver, which generally is paler than usual, or may be speckled greyish red.

Some turkey chicks were examined during the spring, and in one lot disease of the cæca was

cause is a micro-organism closely related to that producing consumption in man and in cattle. There is grave reason to believe that the organism readily infects swine, and some cases of tuberculosis in swine have been directly traced to tuberculous poultry. The infected birds rapidly lose condition and suffer from a persistent diarrhœa. The discharges from the bowel, it is necessary to note, are highly infective, and these discharges without doubt infect the poultry-run, and therefore other fowls. The birds sometimes show lameness, and may have the so-called bumble-foot, though bumble-foot may be due to other causes than tubercle—to acari or

mange mites, for instance. I have found in some cases of bumble-foot the swelling fissured and discharging matter, and in this matter myriads of tubercle bacilli.

When the bird dies or is killed it is found to be very thin and wasted, and when opened grave changes may be found in the viscera. Sometimes the bowels are glued together by inflammatory material which is easily broken up by the fingers, the walls of the intestines are here and there thickened by pea-like swellings or tubercles. The lining of the bowel may be ulcerated where the tubercles are present. The liver is enlarged, and numerous firm yellow tubercles, varying in size from a pinhead to a bean or small nut, are present. Sometimes the whole organ is filled with minute tubercles, greyish yellow in colour. The spleen is enlarged often as big as a walnut, containing many tubercles which have run together; they may be quite firm and cheesy, sometimes hard and chalky. Occasionally tubercles may be found in the lungs, but tubercles of the lungs of birds, though far from rare, are not nearly so common as in cattle and other animals. A very remarkable case I met with in a goose may be of interest. The tuberculous infection had apparently extended from the shoulder joint through the chest wall and invaded the lungs, but, what was most interesting, the big breast muscles of the bird had become implicated. The presence of tuberculosis—that is, the changes induced by the organism of tuberculosis—is not common in the flesh of animals, and is in my experience very rare in the flesh of birds.

Though it is possible for other organs, as the kidney, ovary, &c., to be infected, they are not often diseased; still one hears of eggs being laid which contain the tubercle bacilli. It is quite possible for chicks to develop from eggs containing tubercle bacilli and for the chicks to contain the bacilli in their bodies when born. Experiments made in the laboratory have proved this.

Tuberculosis of birds is a tuberculosis by ingestion; in other words, infection being taken in along with the food reaches the body through the intestine. It may readily be understood how the food is infected when it is remembered that in many cases the bowel of tuberculous birds is seriously diseased and liberating into the bowel myriads of bacilli which are cast out with the droppings. Unless the greatest care be exercised, once tuberculosis appears in a poultry-run it will destroy all the birds. Diseased birds should therefore be destroyed and burnt—not thrown into the dung-heap, but burnt—and thus prevented from infecting other animals. An outbreak of tuberculosis in swine in America was traced to the swine consuming the carcasses of birds dead of tuberculosis.—[*Journal of the Department of Agriculture for Ireland.*]

Walker's Loose-Leaf Diaries and Books.

We have pleasure in again calling attention to the loose-leaf type of book manufactured by the firm of John Walker and Co., Warwick Lane, E.C. The diaries are made in all sizes and bound in a variety of leather covers, and for the many advantages this type of book possesses it is the best on the market. The simplicity of construction prevents them getting out of order, the rings being solid and rigid. The series of expert manuscript books produced by the same firm also possess distinct advantages. The leaves can be torn out and inserted in separate transfer cases for various subjects. Whatever kind or type of diary, pocket, or notebook is required, the same can be supplied by Messrs. Walker and Co.

SELECTIONS FROM OUR CONTEMPORARIES.

The Traffic in Geese from Ireland.

I should be grateful if you would allow me space in your columns wherein to draw attention to the barbarous treatment meted out to live geese in transshipment from Ireland. I have just returned from a visit to County Donegal, where, in common with other parts of the North of Ireland, large numbers of geese are reared by the fisher-folk and sold to dealers. By these men the birds are collected, and driven, in large herds, along the country roads, finally reaching Londonderry. Here they are packed in crates something under 5ft. high, and each containing five floors! Into these crevices, for they are little better, the wretched birds are thrust, so that movement is impossible. They are then placed on board the steamer. Before we were anything like half-way down Lough Foyle these birds began to exhibit the most pitiable signs of distress, those near the bars thrusting out head and neck and panting for breath. Many were salivating, and in not a few the head and neck hung limp, with eyes closed. The men in charge, seeing this, at once set to work to tear down the bars and remove some of the occupants from each compartment, using the while the most brutal roughness, at which I strongly protested and promised to lay the matter before the proper authorities in London, which I have done. One of the officers of the ship, sailing between Derry and Heysham, described the traffic to me as "devilish," and said that, though it had been going on for years, no one had yet raised any voice of protest! Men are appointed, he told me, to watch for cases of cruelty to cattle by the Society for the Prevention of Cruelty to Animals. Yet they do nothing. They bestir themselves occasionally, it would seem, to secure a case for the purpose of justifying their existence; but they practically do nothing, and never, at any time, have attempted to interfere with this barbarous method of shipping geese. Surely this is a disgraceful state of affairs, and demands instant action!—*Country Life*.

Perches for Bantams.

Perches are an important consideration for Bantams, as they are for other and larger breeds of poultry, and upon the question as to which is the best kind of perch there are many and diverse opinions. In a wild state birds do not always remain in exactly the same place on their perch, they sometimes are on a small twig, at others on a large bough, and as variety is said to be the spice of life, I take it that birds, when they are able, secure variety in perches as they do in other things. Those who live in the country, and whose birds delight in a semi-wild or natural existence, will be able to fix up boughs of trees as perches in their houses, and when this can be done there is not much doubt that it is conducive to the birds' comfort. Those of us, however, who are condemned to work out our existence in or near a large town cannot give our birds these luxuries. Unsuitable perches cause the birds uneasiness, and also spoil their carriage. The perches which I use are 1½ in. square, with the rough edge taken off the top; these drop into slots so as to be easily unshipped

for cleaning, I find the birds rest easily and firmly on these, as I have never had a bird go "duck-footed."—*Poultry World*.

The Value of Salt.

Poultry-keepers are by no means agreed as to whether ordinary common salt is beneficial to poultry or whether they thrive as well without it. The practice of giving a small quantity occasionally in the wet mash in the morning is sometimes followed, while sometimes it is dispensed with altogether. Some experiments were lately carried out in France which went to prove that excess of salt acts as a poison to poultry, and some well-authenticated cases are given. On the other hand, however, the majority of American poultry-keepers who adopt the dry mash hopper system of feeding use a small quantity in their dry mash mixture. From our own personal experience in this direction we have come to the conclusion that when fowls are given a reasonable quantity of green food the addition of salt is unnecessary, for the supply is sufficient in this form of plant life, but if this is withheld a very little salt is beneficial.—*The Small Holder*.

Size in Poultry Breeding-Stock.

Whether it is desirable to choose the largest breeding-stock available depends upon circumstances and upon the purpose for which one is breeding. For instance, the producer of table-poultry naturally aims at rapid growth and considerable size, whereas the egg-producer has other motives, and knows well that it is not necessarily the largest hen that lays the most eggs. Indeed, as a general rule the very large hens are the least productive, and much of the food they consume goes to the upkeep of their own physical condition. But, on the other hand, no one—not even an egg-producer—can afford to lose size, and it is one of those things that may very easily be lost, especially in laying-stock, because the modern poultry-keeper invariably goes for records, and he likes his pullets to begin early and to continue laying for a long period, which means that in many cases they are not given time to properly mature. To illustrate our meaning, we saw a flock of March-hatched White Wyandotte pullets in late August that were just on the point of laying, and the owner was encouraging them by administering stimulating foods, although they were all immature, and the best could have done with another month's growth before laying. We do not suggest that the bigger the birds were the better they would lay; but one must look beyond the present and the immediate future, and recollect that some day many of these pullets will be required for the breeding-pen, and having been checked in growth through early laying, they are not likely to produce vigorous, rapid-growing chickens in their turn. This is one of the evils a beginner must guard against. He must remember that the tendency at the present day—due to the demand for early laying and heavy laying—is in the direction of loss of size, and as this entails a corresponding loss in the size of the eggs it must be checked before it becomes a very real menace. It does not follow that in order to avoid this danger breeders should aim for large stock. What we require are moderate-sized birds, whatever the breed may be—large enough to perform their natural functions, but not so large as to consume as great

a value as they give; and the remedy is, in the case of pullets intended for breeding, at any rate, to give the birds plenty of time to develop before forcing them on to lay. Table-poultry producers require not only size, but rapid growth, and they and egg-producers as well will find that the more vigorous the stock the better will be the results.—*The Bazaar, Exchange, and Mart*.

Poultry in Wales.

Wales is pre-eminently a country for poultry-keepers. It was a land of small holdings ages before County Councils were dreamed of, and, being so, is most adaptable for poultry-culture in any form. The mildness of the climate is such that snow seldom lies below the 700 feet line, except in the interior, and, the country being hilly and the soil light, drainage is naturally good. From evidence collected from time to time I have been convinced that, within reasonable limits, poultry can be run on the small moorland farms of Wales with great success. Range is, of course, unlimited, and the air lacks the humidity of the valleys. There are flocks of layers owned by shepherds and others at an altitude of 1,500 feet that do remarkably well, and that are often laying when those in the valley are not doing so. To some extent I think this is due to maize feeding—that being the usual diet—which suits birds at that altitude, whereas it has just the opposite effect upon those lower down. But the fact remains that these Welsh highlands might be enormously productive to the poultry-keeper. His grazing would thereby be improved beyond his brightest hopes, and the flocks of geese which might also be run on such land—these being marketed early for preference, as the cartage of food is heavy under such conditions—where not a single feather is now seen, could surely compare at least favourably with those of the colder climate of our eastern coasts.—*Farm and Home*.

THE EXTERMINATION OF SOIL INSECTS.

GREAT as are the losses occasioned to agriculturists by excess of rain or cold or other climatic conditions, farmers and others whose income is derived from the land have a greater foe to fight in the multitudes of insects which infest the soil. These pests often entirely destroy the roots of young plants, reducing the yield enormously, or they will injure the produce so seriously that it cannot be disposed of, except at a loss for stock feeding and similar purposes. Thirty-three per cent. is by no means an unusual loss from the ravages of soil insects. The *Times*, in a recent issue, contained the following significant words: "Never in the history of agriculture and horticulture were antidotes for insect and fungoid enemies more necessary." Fortunately a scientific remedy exists which is effective in ridding the land of soil insects of practically every kind. This is Vaporite, which was discovered by Mr. G. F. Strawson a few years ago. Vaporite is a non-poisonous grey powder which, when mixed with the moist soil, gives off a vapour which is fatal to practically all the insects which cause such damage to crops. It completely destroys the grubs and hibernating insects in the soil without causing the slightest injury to plants. Its application does not necessitate the use of any special implement, and the labour necessary is infinitesimal. Particulars of Vaporite may be obtained from the Vaporite-Strawson Co., Ltd., of Spencer House, South Place, London, E.C.